

=> FIL REG

FILE 'REGISTRY' ENTERED AT 17:06:18 ON 03 JAN 2011
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=> D HIS NOFILE

FILE 'HCA' ENTERED AT 12:30:07 ON 03 JAN 2011

E US2006-581005/APPS

L1 1 SEA SPE=ON ABB=ON PLU=ON US2006-581005/AP

E DE2003-10357315/APPS

L2 1 SEA SPE=ON ABB=ON PLU=ON (DE2003-10357315/AP OR DE2003-10357315/PRN)

E WO2004-EP13312/APPS

L3 1 SEA SPE=ON ABB=ON PLU=ON (WO2004-EP13312/AP OR WO2004-EP13312/PRN)

L4 1 SEA SPE=ON ABB=ON PLU=ON (L1 OR L2 OR L3)
SEL L4 RN

FILE 'REGISTRY' ENTERED AT 12:31:11 ON 03 JAN 2011

L5 16 SEA SPE=ON ABB=ON PLU=ON (435293-93-9/BI OR 7439-98-7/BI OR

FILE 'HCA' ENTERED AT 12:32:35 ON 03 JAN 2011

SEL L4 AU

L6 164 SEA SPE=ON ABB=ON PLU=ON ("GERHARD, ANJA"/AU OR "STOESSEL, PHILIPP"/AU OR "VESTWEBER, HORST"/AU)

E MERCK/CO

L7 46962 SEA SPE=ON ABB=ON PLU=ON (MERCK+ALL/CO,CS,PA OR "MERCK A

L8 27359 SEA SPE=ON ABB=ON PLU=ON ("MERCK JAPAN LIMITED"+ALL/CO,CS,PA

L9 49438 SEA SPE=ON ABB=ON PLU=ON (L7 OR L8)

FILE 'LREGISTRY' ENTERED AT 13:15:52 ON 03 JAN 2011

L10 STR

L11 STR L10

L12 STR

FILE 'REGISTRY' ENTERED AT 13:22:04 ON 03 JAN 2011

L13 50 SEA SSS SAM L11 OR L12

L14 SCR 2016 OR 1729 OR 1730 OR 1816 OR 1542

L15 50 SEA SSS SAM (L11 OR L12) AND L14

L16 1374383 SEA SPE=ON ABB=ON PLU=ON PMS/CI

L17 0 SEA SPE=ON ABB=ON PLU=ON L5 AND L16

L18 SCR 2043

L19 50 SEA SSS SAM (L11 OR L12) AND L14 NOT L18

FILE 'LREGISTRY' ENTERED AT 13:43:10 ON 03 JAN 2011

L20 STR L11

L21 STR L12

FILE 'REGISTRY' ENTERED AT 13:45:37 ON 03 JAN 2011

L22 SCR 2016 OR 1729 OR 1816 OR 1542

L23 50 SEA SSS SAM (L20 OR L21) AND L22

L24 50 SEA SSS SAM (L20 OR L21) AND L22 NOT L18

FILE 'HCA' ENTERED AT 15:27:54 ON 03 JAN 2011

L25 175876 SEA SPE=ON ABB=ON PLU=ON (ELECTROLUM!N? OR ORGANOLUM!N? OR
(ELECTRO OR ORGANO OR ORG#) (2A)LUM!N? OR LIGHT? (2A) (EMIT? OR
EMISSION?) OR EL OR E(W)L OR L(W)E(W)D OR OLED)/BI,AB OR

LED/IT
SET SMARTSEL ON
L26 SEL PLU=ON L25 1-50000 RN : 8745 TERMS (SELECT ENDED BY
USER)
SET SMARTSEL OFF

FILE 'REGISTRY' ENTERED AT 15:35:24 ON 03 JAN 2011

L27 TRA PLU=ON L25 1- RN : 50070 TERMS
L28 50068 SEA SPE=ON ABB=ON PLU=ON L27
L29 TRA PLU=ON L25 11144- RN : 50556 TERMS
L30 50556 SEA SPE=ON ABB=ON PLU=ON L29
L31 TRA PLU=ON L25 21383- RN : 50376 TERMS
L32 50376 SEA SPE=ON ABB=ON PLU=ON L31
L33 TRA PLU=ON L25 34524- RN : 50311 TERMS
L34 50311 SEA SPE=ON ABB=ON PLU=ON L33
L35 TRA PLU=ON L25 57727- RN : 50734 TERMS
L36 50734 SEA SPE=ON ABB=ON PLU=ON L35
L37 TRA PLU=ON L25 79851- RN : 50351 TERMS
L38 50351 SEA SPE=ON ABB=ON PLU=ON L37
L39 TRA PLU=ON L25 99464- RN : 50499 TERMS
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L41 TRA PLU=ON L25 112996- RN : 50264 TERMS
L42 50264 SEA SPE=ON ABB=ON PLU=ON L41
L43 TRA PLU=ON L25 138292- RN : 31183 TERMS
L44 31182 SEA SPE=ON ABB=ON PLU=ON L43
L45 345027 SEA SPE=ON ABB=ON PLU=ON L28 OR L30 OR L32 OR L34 OR L36 OR
L38 OR L40 OR L42 OR L44
L46 50 SEA SUB=L45 SSS SAM (L20 OR L21)
L47 39366 SEA SUB=L45 SSS FUL (L20 OR L21)
SAV L47 CLA005/A

FILE 'HCA' ENTERED AT 16:55:30 ON 03 JAN 2011

L48 3809942 SEA SPE=ON ABB=ON PLU=ON L47
L49 22614 SEA SPE=ON ABB=ON PLU=ON L48 AND L25
E ELECTROLUMINESCENT DEVICES/CT
L50 95754 SEA SPE=ON ABB=ON PLU=ON "ELECTROLUMINESCENT DEVICES"+PFT/CT
L51 11199 SEA SPE=ON ABB=ON PLU=ON L49 AND L50
L52 23882 SEA SPE=ON ABB=ON PLU=ON PHOSPHORES?
L53 796 SEA SPE=ON ABB=ON PLU=ON L51 AND L52
L54 2057 SEA SPE=ON ABB=ON PLU=ON HOLE (2A) BLOCK?
L55 58 SEA SPE=ON ABB=ON PLU=ON L53 AND L54
L56 4 SEA SPE=ON ABB=ON PLU=ON L55 AND (L6 OR L9)
L57 54 SEA SPE=ON ABB=ON PLU=ON L55 NOT L56
L58 10 SEA SPE=ON ABB=ON PLU=ON 1802-2003/PY,PRY,AY AND L57
L59 TRA PLU=ON L58 1- RN HIT : 16 TERMS

FILE 'REGISTRY' ENTERED AT 16:58:46 ON 03 JAN 2011

L60 16 SEA SPE=ON ABB=ON PLU=ON L59

FILE 'HCA' ENTERED AT 17:00:31 ON 03 JAN 2011

L61 60 SEA SPE=ON ABB=ON PLU=ON L47 (L) L54
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L63 4 SEA SPE=ON ABB=ON PLU=ON L62 OR L56
L64 58 SEA SPE=ON ABB=ON PLU=ON L61 NOT L63
L65 22 SEA SPE=ON ABB=ON PLU=ON 1802-2003/PY,PRY,AY AND L64
L66 31 SEA SPE=ON ABB=ON PLU=ON L58 OR L65
L67 TRA PLU=ON L66 1- RN HIT : 48 TERMS

FILE 'REGISTRY' ENTERED AT 17:04:08 ON 03 JAN 2011

January 3, 2011

10/581,005

3

L68 48 SEA SPE=ON ABB=ON PLU=ON L67
L69 32 SEA SPE=ON ABB=ON PLU=ON L68 NOT L60

FILE 'REGISTRY' ENTERED AT 17:06:18 ON 03 JAN 2011

=> D L47 QUE STAT
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VAR G1=3/6
VAR G2=O/S
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE
L21 STR

$\begin{smallmatrix} G1 \\ 1 \end{smallmatrix} = \begin{smallmatrix} G2 \\ 2 \end{smallmatrix}$

VAR G1=S/C
VAR G2=O/S
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 2

STEREO ATTRIBUTES: NONE

L25 175876 SEA FILE=HCA SPE=ON ABB=ON PLU=ON (ELECTROLUM!N? OR
ORGANOLUM!N? OR (ELECTRO OR ORGANO OR ORG#) (2A)LUM!N? OR
LIGHT?(2A) (EMIT? OR EMISSION?) OR EL OR E(W)L OR L(W)E(W)D OR
OLED)/BI,AB OR LED/IT
L27 TRANSFER PLU=ON L25 1- RN : 50070 TERMS
L28 50068 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L27
L29 TRANSFER PLU=ON L25 11144- RN : 50556 TERMS
L30 50556 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L29
L31 TRANSFER PLU=ON L25 21383- RN : 50376 TERMS
L32 50376 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L31
L33 TRANSFER PLU=ON L25 34524- RN : 50311 TERMS
L34 50311 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L33
L35 TRANSFER PLU=ON L25 57727- RN : 50734 TERMS
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L37 TRANSFER PLU=ON L25 79851- RN : 50351 TERMS
L38 50351 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L37

January 3, 2011

10/581,005

4

L39 TRANSFER PLU=ON L25 99464- RN : 50499 TERMS
L40 50499 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L39
L41 TRANSFER PLU=ON L25 112996- RN : 50264 TERMS
L42 50264 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L41
L43 TRANSFER PLU=ON L25 138292- RN : 31183 TERMS
L44 31182 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L43
L45 345027 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L28 OR L30 OR L32 OR
 L34 OR L36 OR L38 OR L40 OR L42 OR L44
L47 39366 SEA FILE=REGISTRY SUB=L45 SSS FUL (L20 OR L21)

100.0% PROCESSED 167479 ITERATIONS (1 INCOMPLETE) 39366 ANSWERS
SEARCH TIME: 00.00.01

=> FIL HCA

FILE 'HCA' ENTERED AT 17:06:32 ON 03 JAN 2011

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=> D L63 1-4 IBIB ABS HITSTR HITIND RETABLE

L63 ANSWER 1 OF 4 HCA COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 152:592162 HCA Full-text
TITLE: Cyclic arylphosphonic acid derivatives as
 supplementary materials for organic
 electroluminescent devices
INVENTOR(S): Stoessel, Philipp; Heil, Holger; Joosten,
 Dominik; Pflumm, Christof; Gerhard, Anja;
 Breuning, Esther; Parham, Amir Hossain
PATENT ASSIGNEE(S): Merck Patent GmbH, Germany
SOURCE: PCT Int. Appl., 101pp.
 CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2010054730	A1	20100520	WO 2009-EP7406	20091015
W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,				
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG,				
ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP,				
KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA,				
MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE,				
PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV,				
SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU,				
IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI,				
SK, SM, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,				
SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG,				
ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
DE 102008056688	A1	20100512	DE 2008-102008056688	20081111
KR 2010128207	A	20101207	KR 2009-55587	20090622

PRIORITY APPLN. INFO.:

DE 2008-102008056688A 20081111

DE 2009-102009022858A 20090527

OTHER SOURCE(S): MARPAT 152:592162

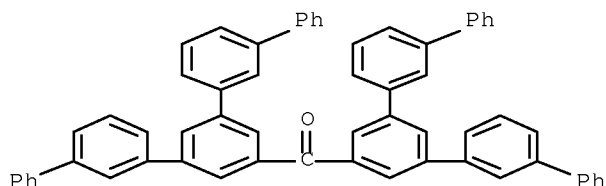
AB Phosphorus heterocyclic compds., preferably diazaphosphole, oxazaphosphole oxides, sulfides [QZ2P(X)]_nAr (1, Q = benzo, areno, hetareno, substituted 1,2-ethenediyl, etc.; Z = imino, O, S; X = O, S, preferably X = O; Ar = C6-60 aryl, arylene; n = 1-6, preferably n = 1-3), useful as matrix and/or supplementary materials for organic electroluminescent devices (OLEDs), preferably for blue- and green-emitting OLEDs, based on phosphorescent transition metal complexes, improving performance, efficiency and lifetime of the OLEDs, for making of emitting, electron-, exciton-, or hole-blocking layers, were prepared by heterocyclization of aromatic o-diamines, o-aminophenols Q(AH)₂ with phosphonic dichlorides Ar[P(X)Cl₂]_n, which, in turn were prepared from the corresponding arylphosphonic, arenediphosphonic and arenetriphosphonic acids. The prepared compds. were tested in model OLEDs by doping the emission and hole-blocking layers, showing increase of efficiency and lifetime of the devices. In an example, 2,2'-(1,4-phenylene)bis(5,6-dimethyl-1,3-diphenyl[1,3,2]benzophosphole) P,P'-dioxide (1a, Q = 4,5-dimethylbenzene-1,2-diyl, Z = NPh, X = O, n = 2, Ar = 1,4-C₆H₄) was prepared by heterocyclization of 4,5-dimethyl-N,N'-diphenyl-1,2-benzenediamine with 1,4-benzenediphosphonic tetrachloride, Cl₂P(O)-1,4-C₆H₄P(O)Cl₂. In another example, the compound 1a, as matrix material doped with 10% tris(3-methyl-2-phenylpyridine)iridium for 30 nm-thick light-emitting layer, showed 57 cd/A efficiency at 1000 cd m⁻² light d. and 560 h lifetime at 4000 cd m⁻² light d., compared with 42 cd/A and 230 h for similar device using bis(9,9'-spirobifluoren-2-yl)phenylphosphine oxide as matrix material.

IT 1205555-94-7

(preparation of cyclic arylphosphonic acid derivs.,
benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic
electroluminescent devices)

RN 1205555-94-7 HCA

CN Methanone, bis([1,1':3',1'':3'',1''':3''',1''''-quinquephenyl]-5''-yl)-
(CA INDEX NAME)

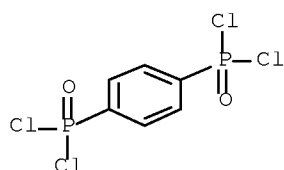


IT 1227269-53-5P, 1,4-Benzenediphosphonic tetrachloride

(preparation of cyclic arylphosphonic acid derivs.,
benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic
electroluminescent devices)

RN 1227269-53-5 HCA

CN Phosphonic dichloride, P,P'-1,4-phenylenebis- (CA INDEX NAME)

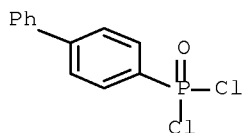


IT 77918-51-5P 1227269-76-2P 1227269-77-3P

(preparation of cyclic arylphosphonic acid derivs.,
benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic
electroluminescent devices)

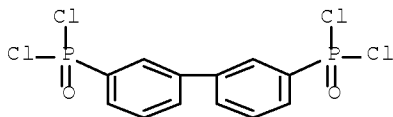
RN 77918-51-5 HCA

CN Phosphonic dichloride, P-[1,1'-biphenyl]-4-yl- (CA INDEX NAME)



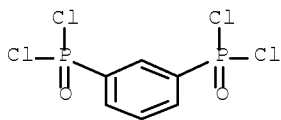
RN 1227269-76-2 HCA

CN Phosphonic dichloride, P,P'-[1,1'-biphenyl]-3,3'-diylbis- (CA INDEX NAME)



RN 1227269-77-3 HCA

CN Phosphonic dichloride, P,P'-1,3-phenylenebis- (CA INDEX NAME)



IPCI C09K0011-06 [I,A]

IPCR C09K0011-06 [I,C]; C09K0011-06 [I,A]

CC 29-7 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 73, 76

ST diazaphosphole oxazaphosphole oxide arylphosphonic deriv prepn matrix
material OLED; phosphorus heterocyclic phosphonic diamide aryl
prepn matrix material OLED; phosphonic deriv cyclic material
OLED matrix hole blocking; heterocyclization

arom amine arylphosphonic dichloride diazaphosphole oxazaphosphole prepn

IT Diphosphonates

Phosphonates

(arylphosphonate derivs.; preparation of cyclic arylphosphonic acid
derivs.,

benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic
electroluminescent devices)

IT Electroluminescent devices

(blue-emitting; preparation of cyclic arylphosphonic acid derivs.,
benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic
electroluminescent devices)

- IT Amines
(diamines, aromatic; preparation of cyclic arylphosphonic acid derivs., benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic electroluminescent devices)
- IT Electroluminescent devices
(green-emitting; preparation of cyclic arylphosphonic acid derivs., benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic electroluminescent devices)
- IT Electrochemical cells
(light-emitting; preparation of cyclic arylphosphonic acid derivs., benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic electroluminescent devices)
- IT Plasmon
(organic plasmon emitting devices; preparation of cyclic arylphosphonic acid derivs., benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic electroluminescent devices)
- IT Field effect transistors
Integrated circuits
Optical detectors
Semiconductor lasers
Solar cells
Thin film transistors
(organic; preparation of cyclic arylphosphonic acid derivs., benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic electroluminescent devices)
- IT Heterocyclic compounds
(phosphorus, 1,3,2-diazaphosphole 2-oxides; preparation of cyclic arylphosphonic acid derivs., benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic electroluminescent devices)
- IT Electrophotographic photoconductors (photoreceptors)
Heterocyclization
(preparation of cyclic arylphosphonic acid derivs., benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic electroluminescent devices)
- IT 3375-31-3 13716-12-6, Tri-tert-butylphosphine 78271-46-2, Phosphonic acid, 1,3-phenylenebis-
(preparation of cyclic arylphosphonic acid derivs., benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic electroluminescent devices)
- IT 1227269-57-9P 1227269-58-0P 1227269-59-1P 1227269-60-4P
1227269-61-5P 1227269-62-6P 1227269-63-7P 1227269-79-5P
(preparation of cyclic arylphosphonic acid derivs., benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic electroluminescent devices)
- IT 2085-33-8, Tris(8-quinolinolato)aluminum 25387-93-3,
(8-Quinolinolato)lithium 50926-11-9, Indium tin oxide 58328-31-7
105598-27-4 123847-85-8, 1,1'-Biphenyl-4-4'-diamine,
N,N'-di-1-naphthalenyl-N,N'-diphenyl- 126213-51-2, PEDOT 164724-35-0
359014-71-4 435294-03-4 515834-67-0 561064-11-7 613682-85-2
1205555-94-7 1206465-62-4 1207176-84-8
(preparation of cyclic arylphosphonic acid derivs., benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic electroluminescent devices)
- IT 62-53-3, Aniline, reactions 92-66-0 92-67-1, [1,1'-Biphenyl]-4-amine
95-53-4, o-Toluidine, reactions 106-49-0, p-Toluidine, reactions
504-24-5, 4-Pyridinamine 534-85-0, 1,2-Benzenediamine, N-phenyl-
583-53-9, 1,2-Dibromobenzene 880-68-2, Phosphonic acid,
1,4-phenylenebis- 3842-55-5 10498-56-3, 1,4-Benzenediphosphonous
tetrachloride 24932-48-7 28394-83-4, 1,2-Benzenediamine,

N,N'-diphenyl- 38613-89-7, Phosphonous dichloride, 1,1'-biphenyl-4-yl-
 77918-47-9, Phosphonic acid, 1,1'-biphenyl-4-yl- 82495-68-9,
 1,3-Benzenediphosphonous tetrachloride 108724-77-2, Phosphonic acid,
 1,1'-biphenyl-3,3'-diylbis- 1227269-78-4

(preparation of cyclic arylphosphonic acid derivs.,
 benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic
 electroluminescent devices)

IT 64436-68-6P 253334-40-6P 773056-31-8P 956471-82-2P 1225231-00-4P
 1227269-53-5P, 1,4-Benzenediphosphonic tetrachloride
 1227269-54-6P 1227269-55-7P 1227269-56-8P 1227269-73-9P
 1227269-80-8P 1227269-81-9P

(preparation of cyclic arylphosphonic acid derivs.,
 benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic
 electroluminescent devices)

IT 77918-51-5P 1227269-64-8P 1227269-65-9P 1227269-66-0P
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 1227269-72-8P 1227269-74-0P 1227269-75-1P 1227269-76-2P
 1227269-77-3P 1227269-82-0P 1227269-83-1P 1227269-84-2P
 1227269-85-3P

(preparation of cyclic arylphosphonic acid derivs.,
 benzo[1,3,2]-diazaphosphole oxides as supplementary materials for organic
 electroluminescent devices)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
=====	=====	=====	=====	=====	=====
Anchisi, C	1979	16	1439	JOURNAL OF HETEROCYC	HCA
Anisimova	1976	46	807	JOURNAL OF GENERAL C	
Konica Minolta Holdings	2007			JP 2007329495 A	HCA
Lister, J	1966		1242	JOURNAL OF THE CHEMI	HCA
Satoshi, O	1995	41	889	HETEROCYCLES	

L63 ANSWER 2 OF 4 HCA COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 145:498536 HCA Full-text
 TITLE: Organic electronic devices and boronic acid and
 boronic acid derivatives used therein
 INVENTOR(S): Stoessel, Philipp; Breuning, Esther;
 Buesing, Arne; Parham, Amir; Heil, Holger;
 Vestweber, Horst
 PATENT ASSIGNEE(S): Merck Patent G.m.b.H., Germany
 SOURCE: PCT Int. Appl., 159pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2006117052	A1	20061109	WO 2006-EP3150	20060406
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,			

GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM

EP 1888706 A1 20080220 EP 2006-724095 20060406
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR
JP 2008541417 T 20081120 JP 2008-509318 20060406
US 20090134384 A1 20090528 US 2007-912939 20071029
CN 101171320 A 20080430 CN 2006-80015401 20071105
KR 2008012337 A 20080211 KR 2007-7028263 20071203

PRIORITY APPLN. INFO.:

EP 2005-9643 A 20050503
WO 2006-EP3150 W 20060406

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 145:498536

AB Organic electronic devices (e.g., organic or polymer light-emitting diodes, organic field-effect transistors, organic integrated circuits, organic thin-film transistors, organic light-emitting transistors, organic solar cells, organic field quenching devices, organic light-emitting cells, organic photoreceptors, and organic laser diodes) are described which comprise ≥ 1 organic film including ≥ 1 aromatic boronic acid or boronic acid derivative compound. The compds. may serve as fluorescent or phosphorescent dopants, as hole-blocking materials, as hole-transporting materials, or as electron-transporting materials. Oligomeric, dendrimeric, and polymeric compds. of boronic acid or boronic acid derivative compds. are also described. Methods for synthesizing polymers including boronic acid derivs. are described which entail polycondensation of aliphatic or aromatic bis(diols), bis(dithiols), bis(diamines), or similar higher substituted compds. with an aromatic bisboronic acid or higher boronic acid or by reaction of an aromatic compound that includes 2 hydroxy, thiol, or amino groups as well as a boronic acid group.

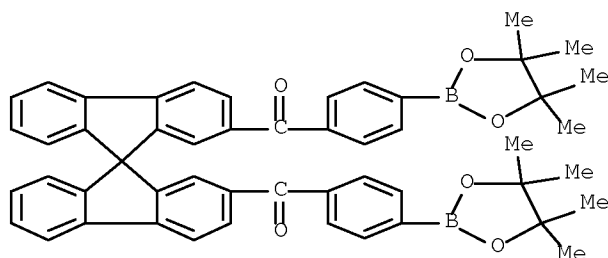
IT 914307-04-3P 914307-06-5P

(organic electronic devices and boronic acid and boronic acid derivs. used in them and production of polymers including boronic acid-containing

groups)

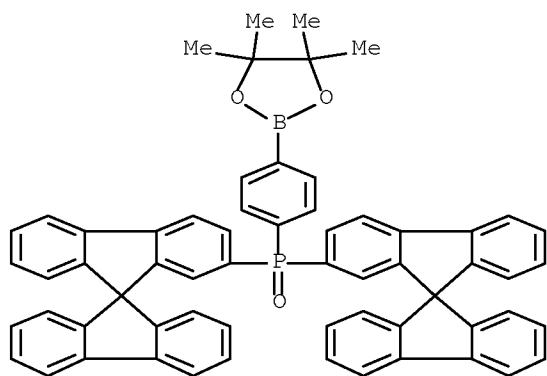
RN 914307-04-3 HCA

CN Methanone, 9,9'-spirobi[9H-fluorene]-2,2'-diylbis[[4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]- (9CI) (CA INDEX NAME)



RN 914307-06-5 HCA

CN Phosphine oxide, 9,9'-spirobi[9H-fluorene]-2-yl-9,9'-spirobi[9H-fluorene]-2'-yl[[4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]- (CA INDEX NAME)

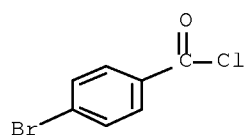


IT 586-75-4 3762-25-2 25069-38-9,
 Bis(4-bromophenyl) (4-formylphenyl)amine 119001-43-3
 187595-15-9

(organic electronic devices and boronic acid and boronic acid derivs. used
 in them and production of polymers including boronic acid-containing
 groups)

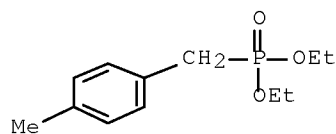
RN 586-75-4 HCA

CN Benzoyl chloride, 4-bromo- (CA INDEX NAME)



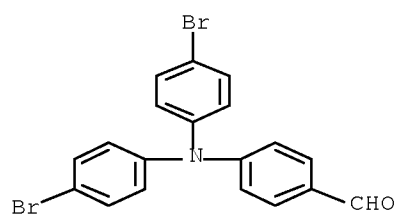
RN 3762-25-2 HCA

CN Phosphonic acid, P-[(4-methylphenyl)methyl]-, diethyl ester (CA INDEX
 NAME)



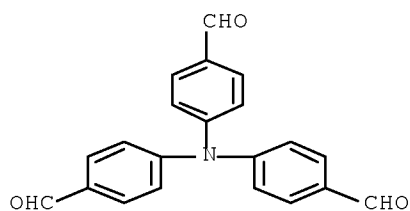
RN 25069-38-9 HCA

CN Benzaldehyde, 4-[bis(4-bromophenyl)amino]- (CA INDEX NAME)



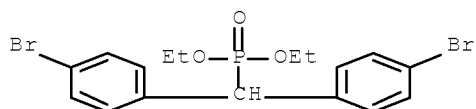
RN 119001-43-3 HCA

CN Benzaldehyde, 4,4',4''-nitrilotris- (CA INDEX NAME)



RN 187595-15-9 HCA

CN Phosphonic acid, [bis(4-bromophenyl)methyl]-, diethyl ester (9CI) (CA INDEX NAME)



IT 914307-05-4P, 2,2'-Bis(4-bromobenzoyl)spiro-9,9'-bifluorene

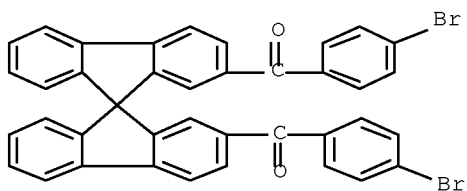
914307-07-6P

(organic electronic devices and boronic acid and boronic acid derivs. used in them and production of polymers including boronic acid-containing

groups)

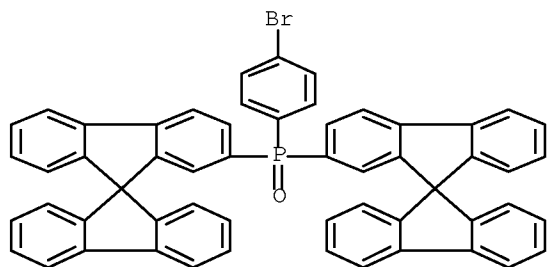
RN 914307-05-4 HCA

CN Methanone, 9,9'-spirobi[9H-fluorene]-2,2'-diylbis[(4-bromophenyl)- (9CI) (CA INDEX NAME)



RN 914307-07-6 HCA

CN Phosphine oxide, (4-bromophenyl)bis(9,9'-spirobi[9H-fluorene]-2-yl)- (9CI) (CA INDEX NAME)



IPCI C09K0011-06 [I,A]; H05B0033-14 [I,A]; C07F0005-02 [I,A]; C07F0005-05 [I,A]; C07F0005-00 [I,C*]; C07F0015-00 [I,A]
 IPCR C09K0011-06 [I,C]; C09K0011-06 [I,A]; C07F0005-00 [I,C]; C07F0005-02 [I,A]; C07F0005-05 [I,A]; C07F0015-00 [I,C]; C07F0015-00 [I,A]; H05B0033-14 [I,C]; H05B0033-14 [I,A]
 CC 76-3 (Electric Phenomena)
 Section cross-reference(s): 52, 73, 74
 ST electronic device boronic acid compd; fluorescent boronic acid compd; phosphorescent boronic acid compd; light emitting diode boronic acid compd; field effect transistor boronic acid compd; integrated circuit boronic acid compd; thin film transistor boronic acid compd; light emitting transistor boronic acid compd; solar cell boronic acid compd; field quenching device boronic acid compd; light emitting cell boronic acid compd; photoreceptor boronic acid compd; laser diode boronic acid compd
 IT Electrical materials
 Fluorescent substances
 Phosphorescent substances
 Thin film transistors
 (organic electronic devices and boronic acid and boronic acid derivs. used in them and production of polymers including boronic acid-containing groups)
 IT Transistors
 (organic light-emitting; organic electronic devices and boronic acid and boronic acid derivs. used in them and production of polymers including boronic acid-containing groups)
 IT Electroluminescent devices
 Electrophotographic photoconductors (photoreceptors)
 Field effect transistors
 Integrated circuits
 Semiconductor devices
 Semiconductor lasers
 Solar cells
 (organic; organic electronic devices and boronic acid and boronic acid derivs. used in them and production of polymers including boronic acid-containing groups)
 IT 910244-23-4P 914306-83-5P, 10-(4-Methylnaphth-1-yl)anthracen-9-boronic acid pinacol ester 914306-84-6P 914306-85-7P 914306-86-8P 914306-88-0P 914306-90-4P 914306-91-5P 914306-94-8P 914306-95-9P 914306-96-0P 914306-97-1P 914306-98-2P 914307-03-2P 914307-04-3P 914307-06-5P 914307-08-7P 914307-09-8P 914307-11-2P
 (organic electronic devices and boronic acid and boronic acid derivs. used in them and production of polymers including boronic acid-containing groups)
 IT 64-19-7, Acetic acid, reactions 83-53-4, 1,4-Dibromonaphthalene

84-65-1, Anthraquinone 90-11-9, 1-Bromonaphthalene 120-80-9,
 Pyrocatechol, reactions 121-43-7, Trimethyl borate 128-08-5,
 N-Bromosuccinimide 159-66-0, Spiro-9,9'-bifluorene 523-27-3,
 9,10-Dibromoanthracene 583-53-9, 1,2-Dibromobenzene ~~586-75-4~~
 611-24-5, 2-Methylaminophenol 620-93-9, Bis(4-methylphenyl)amine
 633-70-5, 2,6-Dibromoanthraquinone 918-21-8 1564-64-3,
 9-Bromoanthracene ~~3762-25-2~~ 7726-95-6, Bromine, reactions
 15546-43-7, N,N,N',N'-Tetraphenylbenzidine 25015-63-8, Pinacolborane
~~25069-38-9~~, Bis(4-bromophenyl)(4-formylphenyl)amine 58328-31-7
 85199-06-0, 2,5-Dimethylphenylboronic acid 100622-34-2, 9-Anthracene
 boronic acid 113040-41-8, Dibromopyrene ~~119001-43-3~~
~~187595-15-9~~ 454454-92-3 613682-84-1 914306-87-9
 914450-89-8

(organic electronic devices and boronic acid and boronic acid derivs. used
 in them and production of polymers including boronic acid-containing

groups)

IT 70430-42-1P 99372-95-9P 103986-53-4P 113664-24-7P,
 N,N,N',N'-Tetra(4-bromophenyl)benzidine 177799-11-0P 426218-39-5P,
 9,10-Bis(4-bromonaphth-1-yl)anthracene 560107-57-5P,
 1,2-Bis(anthracen-9-yl)benzene 597570-70-2P 663954-33-4P,
 1,6-Bis[(4-methylphenyl)amino]pyrene 756899-77-1P,
 1,4-Bis(anthracen-9-yl)naphthalene 910244-27-8P,
 1,2-Bis(10-bromoanthracen-9-yl)benzene 912483-18-2P 912483-19-3P
 914306-89-1P, 2,6-Dibromo-9,10-bis(naphth-1-yl)anthracene 914306-92-6P,
 1,6-Bis(2,5-dimethylphenyl)pyrene 914306-93-7P,
 1,6-Bis(2,5-dimethylphenyl)-3,8-dibromopyrene 914307-00-9P
 914307-02-1P ~~914307-05-4P~~,
 2,2'-Bis(4-bromobenzoyl)spiro-9,9'-bifluorene ~~914307-07-6P~~
 914307-10-1P, 1,6-Bis[(4-methylphenyl)amino]-3,8-dibromopyrene
 914307-12-3P, 9,10-Bis-N,N-[di(4-bromophenyl)amino]anthracene

(organic electronic devices and boronic acid and boronic acid derivs. used
 in them and production of polymers including boronic acid-containing

groups)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Amann, N	2002	8	4877	CHEMISTRY, A EUROPEA	HCA
Amann, N	2002		687	SYNLETT	HCA
Anon	2003	2003		PATENT ABSTRACTS OF	
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Baumgarten, M	2000	104	1130	JOURNAL OF PHYSICAL	HCA
Beinhoff, M	2001		3819	EUROPEAN JOURNAL OF	HCA
Buettelmann, B	2003			US 2003229096 A1	HCA
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Chow, H	2002	85	3444	HELVETICA CHIMICA AC	HCA
Chow, H	2001	66	5042	JOURNAL OF ORGANIC C	HCA
Covion Organic Semicond	2002			WO 02051850 A	HCA
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Eastman Kodak Company	2005			WO 2005020283 A	HCA
Finocchiaro, P	1973	95	7029	JOURNAL OF THE AMERI	HCA
Goswami, A	2004		2635	EUROPEAN JOURNAL OF	HCA
Ishikura, M	1985	23	2375	HETEROCYCLES	HCA
Ishiyama, T	1997	201	92	SPECIAL PUBLICATION	HCA
Kaupp, G	2003	9	4156	CHEMISTRY, A EUROPEA	HCA
Ken-Tsung, W	2002	67	1041	JOURNAL OF ORGANIC C	
Koch, K	1991	124	2091	CHEMISCHE BERICHTE	HCA
Koei Chem Co Ltd	2004			JP 2004189705 A	HCA
Konica Corp	2003			JP 2003031368 A	HCA
Lg Chem Ltd	2003			WO 03095445 A	HCA

January 3, 2011

10/581,005

14

Michels, J	2003	9	6167	CHEMISTRY, A EUROPEA	HCA
Modrakowski, C	2001		2143	SYNTHESIS	HCA
Ramsey, B	2005	690	962	JOURNAL OF ORGANOMET	HCA
Tirapattur, S	2002	106	8959	JOURNAL OF PHYSICAL	
Treacher, K	2004			US 2004260090 A1	HCA
Tsung, W	2004			US 2004147742 A1	
Universal Display Corpo	2003			WO 03033617 A	
Wei-Bo, W	2002			US 2002019527 A1	
Wong, K	2002	124	11576	JOURNAL OF THE AMERI	HCA
Yamashita, M	2000	39	4055	ANGEWANDTE CHEMIE IN	HCA

OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD
(7 CITINGS)

L63 ANSWER 3 OF 4 HCA COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 143:50534 HCA Full-text
 TITLE: Organic electroluminescent element
 INVENTOR(S): Vestweber, Horst; Gerhard, Anja;
 Stoessel, Philipp
 PATENT ASSIGNEE(S): Covion Organic Semiconductors G.m.b.H.,
 Germany
 SOURCE: PCT Int. Appl., 28 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
WO 2005054403	A1	20050616	WO 2004-EP13312	20041124
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
DE 10357315	A1	20050707	DE 2003-10357315	20031205
EP 1697483	A1	20060906	EP 2004-798062	20041124
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS			
CN 1894358	A	20070110	CN 2004-80036011	20041124
JP 2007522645	T	20070809	JP 2006-541841	20041124
US 20070134510	A1	20070614	US 2006-581005	20060526
KR 2006113939	A	20061103	KR 2006-7010957	20060603
PRIORITY APPLN. INFO.:			DE 2003-10357315	A 20031205
			WO 2004-EP13312	W 20041124

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 143:50534

AB Organic electroluminescent devices comprising an anode, a cathode, ≥ 1 emitting layer, which consists of ≥ 1 matrix material which is doped with ≥ 1 phosphorescent emitter, and ≥ 1 hole-blocking layer are described which employ compds. including units described by the general formula Y:X (X has ≥ 1 nonbonded electron pair and is selected from NR, O, S, Se, or Te; R = C1-22 organic residue, OH, OR, NH₂ NHR', and NR'₂; R' = H or C1-20 organic residue;

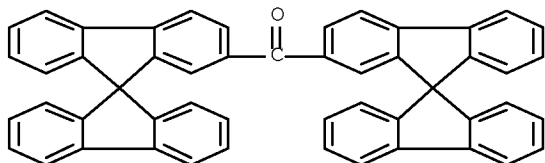
and Y = C, P, As, Sb, Bi, S, Se, or Te) as the hole -blocking material, the material being selected so that the hole-blocking and matrix materials are not identical. The use of the compds. in other electronic devices, including organic field-effect and thin-film transistors, organic integrated circuits, organic solar cells, or organic laser diodes is also described, as are the devices.

IT 782504-07-8 782504-10-3 824426-27-9

(devices with hole-blocking materials incorporating double bonded structural units)

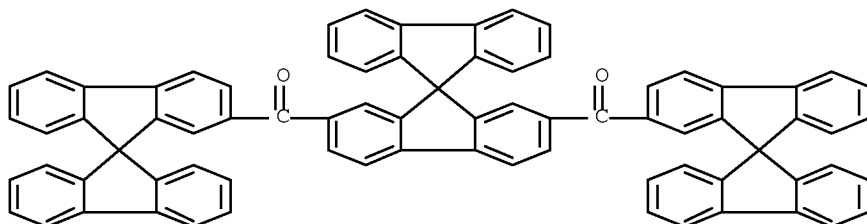
RN 782504-07-8 HCA

CN Methanone, bis(9,9'-spirobi[9H-fluoren]-2-yl)- (CA INDEX NAME)



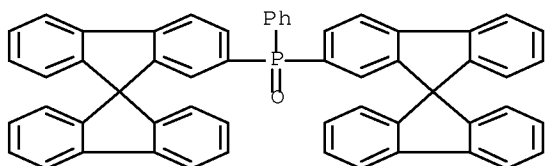
RN 782504-10-3 HCA

CN Methanone, 9,9'-spirobi[9H-fluorene]-2,7-diylbis[9,9'-spirobi[9H-fluoren]-2-yl- (9CI) (CA INDEX NAME)



RN 824426-27-9 HCA

CN Phosphine oxide, phenylbis(9,9'-spirobi[9H-fluoren]-2-yl)- (CA INDEX NAME)



IPCI C09K0011-06 [ICM,7]; H01L0051-30 [ICS,7]; H01L0051-05 [ICS,7,C*];

H05B0033-14 [ICS,7]; C07F0015-00 [ICS,7]

IPCR C07F0015-00 [I,C*]; C07F0015-00 [I,A]; C08G0061-00 [I,C*]; C08G0061-12

[I,A]; C09K0011-06 [I,C*]; C09K0011-06 [I,A]; H01L0051-00 [I,C*];

H01L0051-00 [I,A]; H01L0051-05 [I,C*]; H01L0051-30 [I,A]; H01L0051-50

[N,C*]; H01L0051-50 [N,A]; H05B0033-14 [I,C*]; H05B0033-14 [I,A]

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related

Properties)
 Section cross-reference(s): 52, 76

ST thin film transistor hole blocking material double bonded unit; transistor hole blocking material double bonded unit; org electroluminescent device hole blocking material double bonded unit; semiconductor laser hole blocking material double bonded unit; solar cell hole blocking material double bonded unit; integrated circuit hole blocking material double bonded unit; FET hole blocking material double bonded unit; hole blocking material double bonded unit

IT Thin film transistors
 (devices with hole-blocking materials incorporating double bonded structural units)

IT Imines
 Ketones, uses
 Phosphazenes
 Phosphines
 Sulfones
 Sulfoxides
 (devices with hole-blocking materials incorporating double bonded structural units)

IT Electroluminescent devices
 Field effect transistors
 Integrated circuits
 Semiconductor lasers
 Solar cells
 (organic; devices with hole-blocking materials incorporating double bonded structural units)

IT 782504-07-8 782504-10-3 824426-27-9
 (devices with hole-blocking materials incorporating double bonded structural units)

IT 7439-98-7D, Molybdenum, compds. 7440-04-2D, Osmium, compds. 7440-05-3D, Palladium, compds. 7440-06-4D, Platinum, compds. 7440-15-5D, Rhenium, compds. 7440-16-6D, Rhodium, compds. 7440-18-8D, Ruthenium, compds. 7440-22-4D, Silver, compds. 7440-33-7D, Tungsten, compds. 7440-53-1D, Europium, compds. 7440-57-5D, Gold, compds. 94928-86-6, Tris(2-phenylpyridine)iridium 435293-93-9
 (devices with hole-blocking materials incorporating double bonded structural units)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
=====	=====	=====	=====	=====	=====
Anon	1998	1998		PATENT ABSTRACTS OF	
Konica Corporation	2003			EP 1353388 A	HCA
Oki Electric Ind Co Ltd	1998			JP 10231479 A	HCA
Salbeck, J	1997	91	209	SYNTHETIC METALS	HCA
Sato, H	2002			US 2002125818 A1	
Spreitzer, H	2000	4105	125	PROCEEDINGS OF THE S	
Tokito, S	2000	363	290	THIN SOLID FILMS	
Watanabe, T	2002			US 2002015859 A1	HCA

L63 ANSWER 4 OF 4 HCA COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 143:34908 HCA Full-text
 TITLE: Organic electroluminescent element
 hole-blocking layers with
 six-membered ring unit-containing compounds and
 spirobifluorene derivatives and electronic devices
 using them

INVENTOR(S): Vestweber, Horst; Gerhard, Anja;
Stoessel, Philipp
PATENT ASSIGNEE(S): Covion Organic Semiconductors G.m.b.H.,
Germany
SOURCE: PCT Int. Appl., 38 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005053055	A1	20050609	WO 2004-EP13314	20041124
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10356099	A1	20050707	DE 2003-10356099	20031127
EP 1687857	A1	20060809	EP 2004-803245	20041124
EP 1687857	B1	20090909		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS				
CN 1954446	A	20070425	CN 2004-80035289	20041124
JP 2007520875	T	20070726	JP 2006-540365	20041124
AT 442675	T	20090915	AT 2004-803245	20041124
US 20070051944	A1	20070308	US 2006-580491	20060523
KR 2006122874	A	20061130	KR 2006-7010343	20060526
PRIORITY APPLN. INFO.:			DE 2003-10356099	A 20031127
			WO 2004-EP13314	W 20041124

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 143:34908

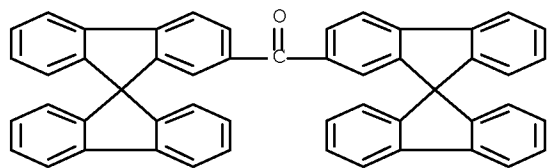
AB Organic ~~electroluminescent~~ devices comprising an anode, a cathode, and ≥ 1 emitting layer, which consists of a matrix material which is doped with ≥ 1 ~~phosphorescent~~ emitter, are described which employ compds. including units based on six-membered rings formed from C and/or N atoms, especially triazines, pyrimidines, pyridazines, and pyrazines, as materials for a ~~hole-blocking~~ layer between the emitting layer and the cathode. Compds., which may be employed in the devices, are described which comprise spirobifluorene derivs. with ≥ 1 triazine unit bonded to them, optionally along with other six-membered ring-containing substituents. The use of the design of the ~~electroluminescent~~ devices in other electronic devices, including organic transistors, organic integrated circuits, organic solar cells, organic laser diodes, or photoreceptors, is also described. Organic transistors, organic integrated circuits, organic solar cells, organic laser diodes, or photoreceptors.

IT 782504-07-8

(organic ~~electroluminescent~~ element with hole-blocking layers formed from compds. including six-membered rings and spirobifluorene derivs. and electronic devices using them)

RN 782504-07-8 HCA

CN Methanone, bis(9,9'-spirobi[9H-fluoren]-2-yl)- (CA INDEX NAME)



- IPCI H01L0051-30 [ICM,7]; H01L0051-05 [ICM,7,C*]; C07D0251-24 [ICS,7];
 C07D0251-00 [ICS,7,C*]; C07D0253-06 [ICS,7]; C07D0253-00 [ICS,7,C*];
 C07D0239-26 [ICS,7]; C07D0239-00 [ICS,7,C*]
 IPCR C07D0239-00 [I,C*]; C07D0239-26 [I,A]; C07D0251-00 [I,C*]; C07D0251-24
 [I,A]; C07D0253-00 [I,C*]; C07D0253-065 [I,A]; H01L0051-05 [I,C*];
 H01L0051-30 [I,A]
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)
 Section cross-reference(s): 25, 27, 28, 74, 76
 ST spirobifluorene deriv hole blocking layer electronic
 device; transistor six membered ring deriv hole blocking
 layer; integrated circuit six membered ring deriv hole
 blocking layer; solar cell six membered ring deriv hole
 blocking layer; laser diode six membered ring deriv hole
 blocking layer; photoreceptor six membered ring deriv hole
 blocking layer; six membered ring deriv hole
 blocking layer electronic device; triazine deriv hole
 blocking layer org electroluminescent device; pyrimidine
 deriv hole blocking layer org
 electroluminescent device; pyrazine deriv hole
 blocking layer org electroluminescent device; pyridazine
 deriv hole blocking layer org
 electroluminescent device
 IT Imines
 Ketones, uses
 Phosphazenes
 Phosphines
 Sulfones
 Sulfoxides
 (emitting layer matrix; organic electroluminescent element with
 hole-blocking layers formed from compds. including
 six-membered rings and spirobifluorene derivs. and electronic devices
 using them)
 IT Spiro compounds
 (organic electroluminescent element with hole-
 blocking layers formed from compds. including six-membered
 rings and spirobifluorene derivs. and electronic devices using them)
 IT Electroluminescent devices
 Electrophotographic photoconductors (photoreceptors)
 Integrated circuits
 Semiconductor lasers
 Solar cells
 Transistors
 (organic; organic electroluminescent element with hole-
 blocking layers formed from compds. including six-membered
 rings and spirobifluorene derivs. and electronic devices using them)
 IT 7439-98-7D, Molybdenum, derivs. 7440-04-2D, Osmium, derivs.
 7440-05-3D, Palladium, derivs. 7440-06-4D, Platinum, derivs.

7440-15-5D, Rhenium, derivs. 7440-16-6D, Rhodium, derivs. 7440-18-8D, Ruthenium, derivs. 7440-22-4D, Silver, derivs. 7440-33-7D, Tungsten, derivs. 7440-53-1D, Europium, derivs. 7440-57-5D, Gold, derivs.

(emitting layer dopant; organic electroluminescent element with hole-blocking layers formed from compds. including six-membered rings and spirobifluorene derivs. and electronic devices using them)

IT 289-80-5D, Pyridazine, derivs. 289-95-2D, Pyrimidine, derivs. 290-37-9D, Pyrazine, derivs. 782504-07-8

(organic electroluminescent element with hole-blocking layers formed from compds. including six-membered rings and spirobifluorene derivs. and electronic devices using them)

IT 94928-86-6, Tris(2-phenylpyridine)iridium

(organic electroluminescent element with hole-blocking layers formed from compds. including six-membered rings and spirobifluorene derivs. and electronic devices using them)

IT 853154-59-3P 853154-60-6P 853154-61-7P

(organic electroluminescent element with hole-blocking layers formed from compds. including six-membered rings and spirobifluorene derivs. and electronic devices using them)

IT 3842-55-5, 2-Chloro-4,6-diphenyl-1,3,5-triazine 34177-11-2, 3-Chloro-5,6-diphenyl-1,2,4-triazine 463944-32-3 853154-62-8

(organic electroluminescent element with hole-blocking layers formed from compds. including six-membered rings and spirobifluorene derivs. and electronic devices using them)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	2003	2003		PATENT ABSTRACTS OF	
Fink, R	2002			US 6352791 B1	HCA
Hayoz, P	2004			WO 2004077885 A	HCA
Hoechst Ag	1996			DE 4446818 A1	HCA
Hu, N	2001			US 6229012 B1	HCA
Jean-Hugues, F	2004	69	1762	JOURNAL OF ORGANIC C	
Nishi, T	2002			US 2002034659 A1	HCA
Toray Ind Inc	2003			JP 2003086381 A	HCA
Wu, C	2002	81	577	APPLIED PHYSICS LETT	HCA
Xerox Corporation	2004			EP 1385221 A	HCA

OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD
(9 CITINGS)

=> D L66 1-31 IBIB ABS HITSTR HITIND RETABLE

L66 ANSWER 1 OF 31 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 143:376222 HCA Full-text

TITLE: Organic light emitting diode
containing a novel Ir complex as a
phosphorescent emitter

INVENTOR(S): Cheng, Chien-Hong; Duan, Jiun-Pey; Rayabarapu, Dinesh
Kumar; Jennifer, Betty Marie

PATENT ASSIGNEE(S): Cheng, Chien-Hong, Taiwan

SOURCE: U.S. Pat. Appl. Publ., 25 pp.
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

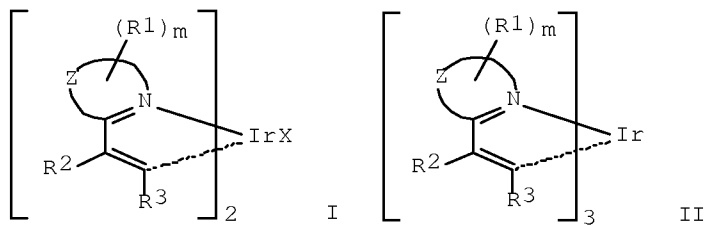
January 3, 2011

10/581,005

20

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050227109	A1	20051013	US 2004-822647	20040413 <--
US 7320834	B2	20080122		
TW 232704	B	20050511	TW 2003-120288	20030724 <--
KR 2005012132	A	20050131	KR 2004-55376	20040716 <--
KR 853701	B1	20080825		

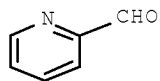
PRIORITY APPLN. INFO.: TW 2003-120288 A 20030724 <--
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
OTHER SOURCE(S): MARPAT 143:376222
GI



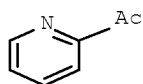
AB Organic light-emitting diodes are described which employ an electroluminescent medium which comprises a phosphorescent Ir complex described by general formula I or II (X = a monoanionic bidentate ligand; Z = an atomic moiety capable of forming a nitrogen-containing heterocyclic group; R1 = H, halo, C1-6 alkyl, halogen-substituted C1-6 alkyl, C1-6 alkoxy, Ph-C1-6 alkyl, amino, and aryl; m = 0 or any pos. integer determined by the ring size of the nitrogen-containing heterocyclic group; R2 and R3 = independently selected H, halogen, C1-6 alkyl, halogen-substituted C1-6 alkyl, C1-6 alkoxy, Ph C1-6 alkyl, amino, aryl, and heterocyclic aryl).

IT 1121-60-4, 2-Pyridinecarboxaldehyde 1122-62-9
10025-87-3, Phosphoryl chloride
(organic light-emitting diodes employing iridium complexes as phosphorescent emitters)

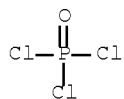
RN 1121-60-4 HCA
CN 2-Pyridinecarboxaldehyde (CA INDEX NAME)



RN 1122-62-9 HCA
CN Ethanone, 1-(2-pyridinyl)- (CA INDEX NAME)



RN 10025-87-3 HCA
 CN Phosphoric trichloride (CA INDEX NAME)



INCL 428690000; X42-891.7; X31-350.4; X31-350.6; X25-710.2
 IPCI H01L0051-54 [I,A]; H01L0051-50 [I,C*]; C09K0011-06 [N,A]
 IPCR H05B0033-14 [I,C*]; H05B0033-14 [I,A]; H01L0051-50 [I,C]; H01L0051-50 [I,A]; H01L0051-54 [I,A]; C09K0011-06 [I,C*]; C09K0011-06 [I,A]; H05B0033-12 [I,C*]; H05B0033-20 [I,A]; H05B0033-22 [I,C*]; H05B0033-22 [I,A]
 NCL 428/690.000; 257/102.000; 313/504.000; 313/506.000; 428/917.000; 257/E51.044
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 76, 78
 ST org light emitting diode iridium complex
 phosphorescent emitter
 IT Phosphorescent substances
 (organic light-emitting diodes employing iridium complexes as phosphorescent emitters)
 IT Electroluminescent devices
 (organic; organic light-emitting diodes employing iridium complexes as phosphorescent emitters)
 IT 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 123847-85-8, NPB 192198-85-9, TPBI
 (electron-transporting material; organic light-emitting diodes employing iridium complexes as phosphorescent emitters)
 IT 185690-41-9, 4,4',4''-Tris(2-naphthylphenylamino)triphenylamine
 (hole injection modification layer containing; organic light-emitting diodes employing iridium complexes as phosphorescent emitters)
 IT 4733-39-5, BCP 146162-54-1, BALq
 (hole-blocking layer containing; organic light-emitting diodes employing iridium complexes as phosphorescent emitters)
 IT 19287-68-4 58328-31-7
 (hole-transporting material; organic light-emitting diodes employing iridium complexes as phosphorescent emitters)
 IT 844818-66-2P 844818-67-3P 844818-68-4P 844818-69-5P 844818-70-8P 844818-71-9P 844818-72-0P 844818-73-1P 844818-74-2P 844818-75-3P
 (organic light-emitting diodes employing iridium complexes as phosphorescent emitters)
 IT 75-03-6, Ethyl iodide 100-39-0 109-04-6, 2-Bromopyridine 536-74-3, Phenylacetylene 603-35-0, Triphenylphosphine, reactions 612-62-4 615-20-3 634-47-9 688-73-3, Tributyltin hydride 1121-60-4, 2-Pyridinecarboxaldehyde 1122-62-9 1532-72-5, Isoquinoline N-oxide 3510-66-5 10025-83-9, Iridium trichloride 10025-87-3, Phosphoryl chloride 15727-65-8 52248-74-5 52334-81-3 59066-57-8, 1-((E)-2-Phenyl-1-ethenyl)isoquinoline
 (organic light-emitting diodes employing iridium complexes as phosphorescent emitters)

IT 538-49-8P 4736-60-1P, Triphenylethylphosphonium iodide 7370-19-6P
 13673-46-6P 19493-44-8P, 1-Chloroisoquinoline 38101-69-8P,
 2-((E)-2-Phenyl-1-ethenyl)quinoline 53500-07-5P 59066-61-4P
 66680-88-4P 84586-45-8P, 4-Methyl-2-((E)-2-phenyl-1-ethenyl)quinoline
 844698-46-0P
 (organic light-emitting diodes employing iridium
 complexes as phosphorescent emitters)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Deaton	2005			US 20050123792 A1	HCA
Deaton	2005			US 20050123798 A1	HCA
Hamada	2003			US 20030194580 A1	HCA
Hamada	2006			US 7022422 B2	HCA
Lussier	2005			US 20050123795 A1	HCA
Sano	1995			US 5432014 A	HCA
Sato	2002			US 20020125818 A1	HCA
Takiguchi	2002			US 20020100906 A1	HCA
Takiguchi	2004			US 6797980 B2	HCA
Thompson	2002			US 20020034656 A1	HCA

L66 ANSWER 2 OF 31 HCA COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 142:490160 HCA Full-text
 TITLE: Light emitting devices and
 materials for use in the devices
 INVENTOR(S): Wudl, Fred; Mitsumori, Teruyuki; Sato, Yoshiharu;
 Sato, Hideki; Shioya, Takeshi
 PATENT ASSIGNEE(S): University of California, Los Angeles UCLA, USA;
 Mitsubishi Chemical Corporation
 SOURCE: PCT Int. Appl., 20 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005048315	A2	20050526	WO 2004-US37843	20041110 <--
WO 2005048315	A3	20060706		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

PRIORITY APPLN. INFO.: US 2003-518986P P 20031110 <--
 OTHER SOURCE(S): MARPAT 142:490160

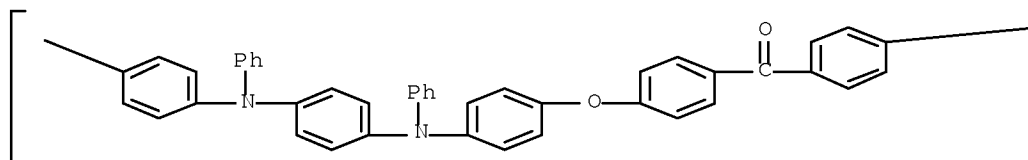
AB Light-emitting materials represented by the general formula I,II,III and IV
 (Z1 = aromatic ring having a nitrogen atom; Z2 = fused ring; M = Ir,Pt or Pd)
 are described. An organic light- emitting device comprising the light-
emitting layer is also described.
 IT 533935-00-1

(hole injection material; light emitting devices
and materials for use in devices)

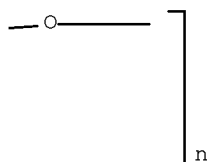
RN 533935-00-1 HCA

CN Poly[oxy-1,4-phenylenecarbonyl-1,4-phenyleneoxy-1,4-phenylene(phenylimino)-
1,4-phenylene(phenylimino)-1,4-phenylene] (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IPCI C07D0221-00 [I,C]; C07D0221-18 [I,A]
 IPCR C07D0221-00 [I,C]; C07D0221-18 [I,A]; C09K0011-06 [I,C*]; C09K0011-06
 [I,A]; H01L [I,S]; H01L0051-00 [I,C*]; H01L0051-00 [I,A]; H01L0051-50
 [N,C*]; H01L0051-50 [N,A]; H05B0033-14 [I,C*]; H05B0033-14 [I,A]
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)
 Section cross-reference(s): 22, 76
 ST light emitting material device LED
 IT Electroluminescent devices
 Luminescent substances
 Phosphorescent substances
 (light emitting devices and materials for use in
 devices)
 IT 157077-25-3
 (hole blocking material; light
 emitting devices and materials for use in devices)
 IT 1109-15-5 533935-00-1
 (hole injection material; light emitting devices
 and materials for use in devices)
 IT 147-14-8, Copper phthalocyanine 2085-33-8, AlQ3 123847-85-8
 811811-13-9
 (light emitting devices and materials for use in
 devices)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon				US 6303238 B1	HCA

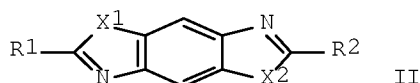
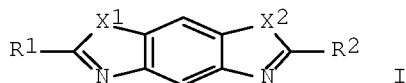
January 3, 2011

10/581,005

24

L66 ANSWER 3 OF 31 HCA COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 142:363426 HCA Full-text
TITLE: Organic ~~electroluminescent~~ devices with high
luminance, durability, and emission efficiency and
materials therefor
INVENTOR(S): Onikubo, Shunichi; Enokida, Toshio; Suda, Yasumasa;
Toba, Yasumasa; Kimura, Yasunori; Kaneko, Tetsuya
PATENT ASSIGNEE(S): Toyo Ink Mfg. Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 35 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

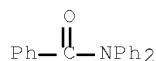
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2005082703	A	20050331	JP 2003-316325	20030909 <--
JP 4306379	B2	20090729		
PRIORITY APPLN. INFO.:			JP 2003-316325	20030909 <--
OTHER SOURCE(S):	MARPAT 142:363426			
GI				



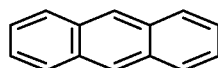
AB The materials contain (A) heterocyclic compds. wherein plural N-containing rings are fused directly or via other carbon or heterocyclic rings and (B) phosphorescent substances (e.g., organic compds., Ir or Pt complexes with organic ligands). The compds. A may be I or II [X1, X2 = O, S, NR3; R1-R3 = (cyclo)alkyl, aryl, heterocyclic]. In organic EL devices having emitting layers or those-including plural organic layers between a pair of electrodes, ≥1 of the layers contain the above materials. The devices may have electron-injecting layers between cathodes and the emitting layers, hole-blocking layers between the electron-injecting layers and the emitting layers, and/or hole-injecting layers between anodes and the emitting layers.

IT 4051-56-3 31671-77-9, Anthraldehyde
(in preparation of phosphors; phosphors containing benzobisthiazole-like fused heterocyclic compds. for durable organic EL devices with high emission efficiency)

RN 4051-56-3 HCA
CN Benzamide, N,N-diphenyl- (CA INDEX NAME)



RN 31671-77-9 HCA
 CN Anthracenecarboxaldehyde (CA INDEX NAME)



D1- CHO

IPCI C09K0011-06 [I,A]; H01L0051-50 [I,A]
 IPCR C09K0011-06 [I,A]; C09K0011-06 [I,C*]; H05B0033-14 [I,A]; H05B0033-14 [I,C*]; H01L0051-50 [I,C*]; H01L0051-50 [I,A]
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 ST org electroluminescent emission efficiency durability luminance;
 EL phosphor benzobisthiazole benzobisoxazole benzobisimidazole;
 phosphorescent iridium platinum complex doped EL
 phosphor
 IT Electroluminescent devices
 (organic; phosphors containing benzobisthiazole-like fused heterocyclic
 compds. for durable organic EL devices with high emission
 efficiency)
 IT Phosphors
 (phosphors containing benzobisthiazole-like fused heterocyclic compds. for
 durable organic EL devices with high emission efficiency)
 IT 14187-14-5 31248-39-2 94928-86-6 149005-33-4 343978-94-9
 376367-93-0 848902-76-1
 (dopants, emitting layers; phosphors containing benzobisthiazole-like fused
 heterocyclic compds. for durable organic EL devices with high
 emission efficiency)
 IT 2085-33-8 395644-78-7
 (electron-injecting layers; phosphors containing benzobisthiazole-like
 fused heterocyclic compds. for durable organic EL devices with
 high emission efficiency)
 IT 65181-78-4
 (emitting layers, hole-injecting layers; phosphors containing
 benzobisthiazole-like fused heterocyclic compds. for durable organic
 EL devices with high emission efficiency)
 IT 905-62-4, 2,5-Bis(1-naphthyl)-1,3,4-oxadiazole
 (emitting layers; phosphors containing benzobisthiazole-like fused
 heterocyclic compds. for durable organic EL devices with high
 emission efficiency)
 IT 219596-73-3P 219596-76-6P 219597-18-9P
 (emitting layers; phosphors containing benzobisthiazole-like fused
 heterocyclic compds. for durable organic EL devices with high
 emission efficiency)
 IT 13399-13-8 133531-74-5 219596-84-6 219596-97-1 219597-01-0
 219597-22-5 219597-29-2 219597-32-7 219597-58-7 848941-49-1
 848941-50-4 848941-51-5 848941-52-6 848941-53-7 848941-54-8
 (emitting layers; phosphors containing benzobisthiazole-like fused

heterocyclic compds. for durable organic EL devices with high emission efficiency)

IT 1662-01-7, Bathophenanthroline 4733-39-5, Bathocuproin 146162-49-4
150405-69-9, 3-(4-Biphenyl)-4-phenyl-5-(4-tert-butylphenyl)-1,2,4-triazole 188049-37-8 221554-51-4 848902-77-2 848902-78-3
(hole-blocking layers; phosphors containing benzobisthiazole-like fused heterocyclic compds. for durable organic EL devices with high emission efficiency)

IT 147-14-8, Copper phthalocyanine 123847-85-8 182507-83-1 185690-39-5, 4,4',4''-Tris[N-(1-naphthyl)-N-phenylamino]triphenylamine
(hole-injecting layers; phosphors containing benzobisthiazole-like fused heterocyclic compds. for durable organic EL devices with high emission efficiency)

IT 4051-56-3 16523-31-2 31671-77-9, Anthraldehyde 848941-55-9
(in preparation of phosphors; phosphors containing benzobisthiazole-like fused heterocyclic compds. for durable organic EL devices with high emission efficiency)

L66 ANSWER 4 OF 31 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 142:363425 HCA Full-text

TITLE: Organic electroluminescent devices with high luminance, durability, and emission efficiency and materials therefor

INVENTOR(S): Onikubo, Shunichi; Enokida, Toshio; Suda, Yasumasa; Toba, Yasumasa; Kimura, Yasunori; Kaneko, Tetsuya

PATENT ASSIGNEE(S): Toyo Ink Mfg. Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 54 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

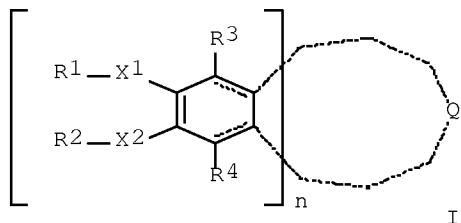
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2005082702	A	20050331	JP 2003-316324	20030909 <--
PRIORITY APPLN. INFO.:			JP 2003-316324	20030909 <--
OTHER SOURCE(S):	MARPAT	142:363425		

GI



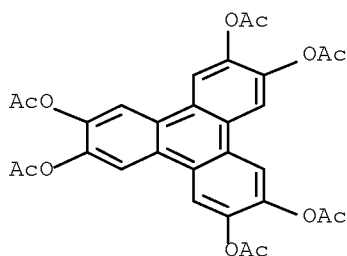
AB The materials contain compds. having I units [X1, X2 = O, CO2, OCO; R1, R2 = (cyclo)alkyl, aryl, heterocyclic; R3, R4 = H, halo, CN, NO2, alkyl(oxy), aryl(oxy), alkylthio, arylthio, amino, acyl, heterocyclic; Q = fused ring structure or linking group forming rings with the units; n = 2-6] and phosphorescent substances (e.g., organic compds., Ir or Pt complexes with organic ligands). In organic EL devices having emitting layers (A) or A- including plural organic layers between a pair of electrodes, ≥ 1 of the layers contain the above materials. The devices may have hole-injecting layers (B) between anodes and A, electron-blocking layers between A and B, electron-injecting layers (C) between cathodes and A, and/or hole-blocking layers between C and A.

IT 32829-08-6 848940-24-9

(emitting layers; fused aromatic compound-containing phosphors for organic EL devices with high luminance, durability, and emission efficiency)

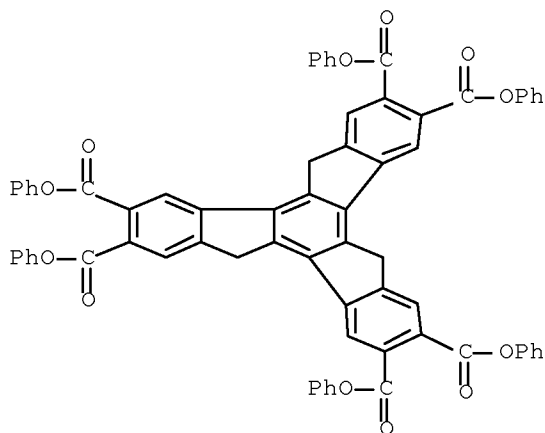
RN 32829-08-6 HCA

CN 2,3,6,7,10,11-Triphenylenehexol, 2,3,6,7,10,11-hexaacetate (CA INDEX NAME)



RN 848940-24-9 HCA

CN 5H-Tribenzo[a,f,k]trindene-2,3,7,8,12,13-hexacarboxylic acid, 10,15-dihydro-, 2,3,7,8,12,13-hexaphenyl ester (CA INDEX NAME)



IPCI C09K0011-06 [ICM,7]; H05B0033-14 [ICS,7]; H05B0033-22 [ICS,7]

IPCR C09K0011-06 [I,A]; C09K0011-06 [I,C*]; H05B0033-14 [I,A]; H05B0033-14 [I,C*]; H05B0033-22 [I,A]; H05B0033-22 [I,C*]

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related

Properties)
 ST org electroluminescent emission efficiency durability luminance;
 fused alkoxybenzene acyloxybenzene benzenecarboxylic acid EL
 phosphor; alkoxytriphenylene phosphor iridium platinum complex doped
 EL
 IT Phosphors
 (fused aromatic compound-containing phosphors for organic EL devices with
 high luminance, durability, and emission efficiency)
 IT Electroluminescent devices
 (organic; fused aromatic compound-containing phosphors for organic EL
 devices with high luminance, durability, and emission efficiency)
 IT 14187-14-5 31248-39-2 94928-86-6 149005-33-4 344796-24-3
 376367-93-0 848902-76-1
 (dopants, emitting layers; fused aromatic compound-containing phosphors for
 organic
 EL devices with high luminance, durability, and emission
 efficiency)
 IT 208939-07-5 848940-26-1
 (electron-blocking layers; fused aromatic compound-containing phosphors for
 organic
 EL devices with high luminance, durability, and emission
 efficiency)
 IT 2085-33-8 23467-27-8 395644-78-7
 (electron-injecting layers; fused aromatic compound-containing phosphors
 for
 organic EL devices with high luminance, durability, and emission
 efficiency)
 IT 905-62-4, 2,5-Bis(1-naphthyl)1,3,4-oxadiazole 58328-31-7, CBP
 65181-78-4 192198-85-9
 (emitting layers; fused aromatic compound-containing phosphors for organic
 EL devices with high luminance, durability, and emission
 efficiency)
 IT 23417-07-4 ~~32829-08-6~~ 32829-11-1 134025-08-4 134025-15-3
 134656-41-0 162281-25-6 208938-92-5 208939-01-9 208939-08-6
 208939-12-2 208939-44-0 848940-19-2 848940-20-5 848940-22-7
 848940-23-8 ~~848940-24-9~~ 848940-25-0 848940-28-3
 (emitting layers; fused aromatic compound-containing phosphors for organic
 EL devices with high luminance, durability, and emission
 efficiency)
 IT 808-57-1P
 (fused aromatic compound-containing phosphors for organic EL devices with
 high luminance, durability, and emission efficiency)
 IT 1662-01-7, Bathophenanthroline 4733-39-5, Bathocuproin 146162-49-4
 146162-54-1 150405-69-9, 3-(4-Biphenyl)-4-phenyl-5-(4-tert-
 butylphenyl)-1,2,4-triazole 221554-51-4 848902-77-2 848902-78-3
 (hole-blocking layers; fused aromatic compound-containing
 phosphors for organic EL devices with high luminance,
 durability, and emission efficiency)
 IT 208939-55-3 848940-21-6 848940-27-2
 (hole-injecting and electron-blocking layers; fused aromatic compound-
 containing
 phosphors for organic EL devices with high luminance,
 durability, and emission efficiency)
 IT 147-14-8, Copper phthalocyanine 123847-85-8 182507-83-1 185690-39-5,
 4,4',4''-Tris[N-(1-naphthyl)-N-phenylamino]triphenylamine
 (hole-injecting layers; fused aromatic compound-containing phosphors for
 organic
 EL devices with high luminance, durability, and emission
 efficiency)
 IT 91-16-7, 1,2-Dimethoxybenzene

(in preparation of phosphors; fused aromatic compound-containing phosphors for organic

EL devices with high luminance, durability, and emission efficiency)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L66 ANSWER 5 OF 31 HCA COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 142:269139 HCA Full-text
 TITLE: Photoconductive imaging members
 INVENTOR(S): Wu, Jin; Tong, Yuhua; Lin, Liang-bih; Hu, Nan-xing; Ferrarese, Linda L.; Duff, James M.; Qi, Yu
 PATENT ASSIGNEE(S): Xerox Corporation, USA
 SOURCE: U.S. Pat. Appl. Publ., 10 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050042533	A1	20050224	US 2003-647055	20030822 <--
US 6946226	B2	20050920		
CN 1584746	A	20050223	CN 2004-10057866	20040820 <--
JP 2005070786	A	20050317	JP 2004-242148	20040823 <--
JP 4541801	B2	20100908		

PRIORITY APPLN. INFO.: US 2003-647055 A 20030822 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

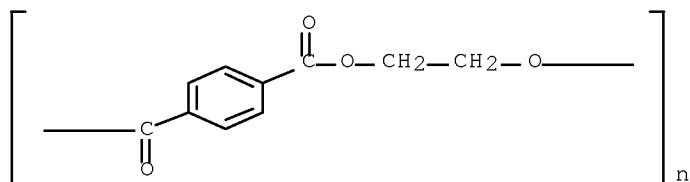
OTHER SOURCE(S): MARPAT 142:269139

AB A photoconductive imaging member comprised of a supporting substrate, a hole blocking layer thereover, a photogenerating layer, and a charge transport layer, and wherein the hole blocking layer is comprised of particles chemical attached on the surface of an electron transport component.

IT 25038-59-9, PET, uses
 (hole blocking layer of electrophotog.
 photoreceptor)

RN 25038-59-9 HCA

CN Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl) (CA INDEX NAME)



INCL 430064000; 430058800; 430059400; 430065000

IPCI G03G0005-14 [ICM,7]

IPCR G03G0005-043 [I,C*]; G03G0005-047 [I,A]; G03G0005-05 [I,C*]; G03G0005-05 [I,A]; G03G0005-06 [I,C*]; G03G0005-06 [I,A]; G03G0005-14 [I,C*]; G03G0005-14 [I,A]

NCL 430/064.000; 430/058.800; 430/059.400; 430/065.000; 430/058.250

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 574-93-6D, Phthalocyanine, derivative 1344-28-1, Alumina, uses 7429-90-5,

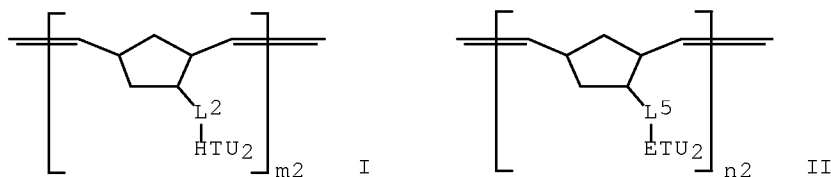
Aluminum, uses 12679-43-5D, Naphthaquinone, derivative, carboxybenzyl
 13463-67-7, Titania, uses ~~25038-59-9~~, PET, uses 61372-93-8
 65181-78-4 93376-18-2 845784-80-7 845784-81-8
 (hole blocking layer of electrophotog.
 photoreceptor)

OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD
 (13 CITINGS)

L66 ANSWER 6 OF 31 HCA COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 142:165272 HCA Full-text
 TITLE: Block copolymers for organic
 electroluminescent (EL) device and
 its display, illumination, and light source
 INVENTOR(S): Kawakami, Akira; Kita, Hiroshi; Ogino, Kenji
 PATENT ASSIGNEE(S): Konica Minolta Holdings, Inc., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 56 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005015508	A	20050120	JP 2003-177859	20030623 <--
JP 4300902	B2	20090722		
PRIORITY APPLN. INFO.:			JP 2003-177859	20030623 <--

GI



AB The block copolymers comprise (A) block components of repeating units having hole-transporting units (HTU), (B) block components of repeating units having electron-transporting units (ETU), and (C) repeating units having phosphorescent units. Preferably, the block A is represented by the general formula $[\text{CHR1CR2}(\text{L1HTU1})]_{\text{m1}}$, I, or $[\text{O}(\text{CR3R4})\text{l1CR5}(\text{L3HTU3})]_{\text{m3}}$ (HTU1-HTU3 = hole-transporting moiety; R1-R5 = H, substituent; L1-L3 = linking group, bond; m ≥ 3 integer; l1 = 1, 2, 3) and the block B is represented by the general formula $[\text{CHR6CR7}(\text{L4ETU1})]_{\text{n1}}$, II, or $[\text{O}(\text{CR8R9})\text{l2CR10}(\text{L6ETU3})]_{\text{n3}}$ (ETU1-ETU3 = electron-transporting moiety; R6-R10 = H, substituent; L4-L6 = linking group, bond; n1-n3 ≥ 3 integer; l2 = 1, 2, 3). Preferably, the HTU comprise triphenylamine units and the ETU have F or F-containing substituents. Preferably, the surface free energy of the monomer forming HTU-containing repeating units is larger than that of the monomers of the ETU-containing repeating units and these monomers are incompatible to each other. Preferably, the block copolymers are prepared by atom.-transfer radical polymerization. Preferably, ≥ 1 of the block A contains hydrolyzable silyl groups, more preferably, trialkoxysilyl groups, and also contains dialkylamino groups. The organic EL device contains the A-B-C block copolymers in ≥ 1 of the organic

layers provided between a cathode and an anode. In another alternative, the organic EL device contains A-B block copolymers and phosphorescent compds. The organic EL device has high emission efficiency, long service life, and high productivity.

IT 830318-25-7F 830318-29-1F

(block copolymers for organic EL device for display,
illumination, and light source)

RN 830318-25-7 HCA

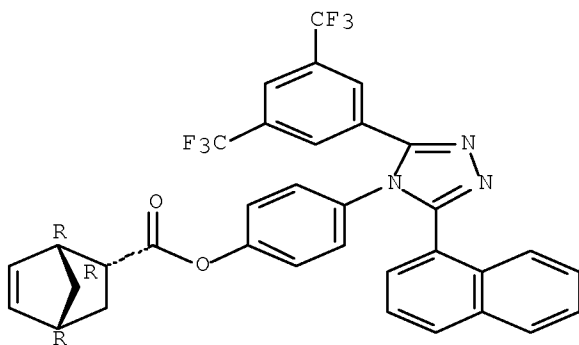
CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-κN)phenyl-κC] (4-ethenyl-2-pyridinecarboxylato-κN1,κO2)-, polymer with rel-4-[3-[3,5-bis(trifluoromethyl)phenyl]-5-(1-naphthalenyl)-4H-1,2,4-triazol-4-yl]phenyl (1R,2R,4R)-bicyclo[2.2.1]hept-5-ene-2-carboxylate and rel-4-(9H-carbazol-9-yl)phenyl (1R,2R,4R)-bicyclo[2.2.1]hept-5-ene-2-carboxylate, block (9CI) (CA INDEX NAME)

CM 1

CRN 830318-24-6

CMF C34 H23 F6 N3 O2

Relative stereochemistry.

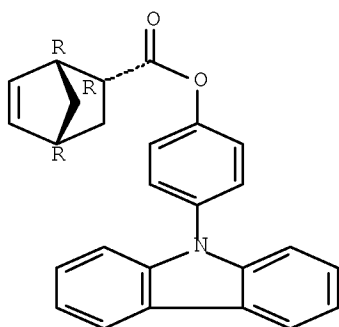


CM 2

CRN 830318-23-5

CMF C26 H21 N O2

Relative stereochemistry.

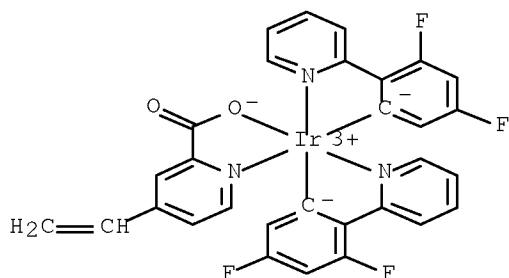


CM 3

CRN 830318-19-9

CMF C30 H18 F4 Ir N3 O2

CCI CCS



RN 830318-29-1 HCA

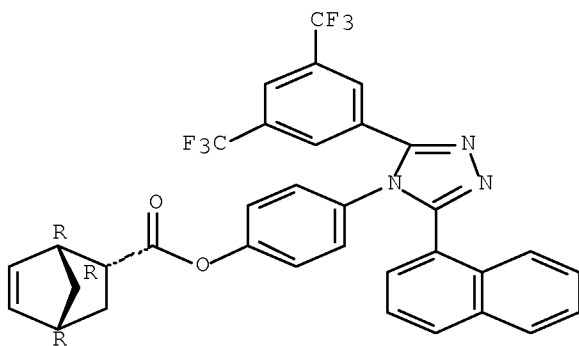
CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid,
 4-[3-[3,5-bis(trifluoromethyl)phenyl]-5-(1-naphthalenyl)-4H-1,2,4-triazol-
 4-yl]phenyl ester, (1R,2R,4R)-rel-, polymer with
 (1R,2R,4R)-rel-4-(9H-carbazol-9-yl)phenyl
 bicyclo[2.2.1]hept-5-ene-2-carboxylate, block (9CI) (CA INDEX NAME)

CM 1

CRN 830318-24-6

CMF C34 H23 F6 N3 O2

Relative stereochemistry.

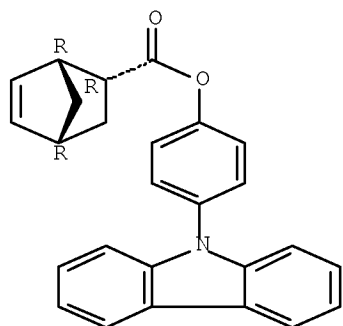


CM 2

CRN 830318-23-5

CMF C26 H21 N O2

Relative stereochemistry.



IPCI C08F0297-00 [I,A]; C09K0011-06 [I,A]; H01L0051-50 [I,A]
 IPCR C08F0297-00 [I,A]; C08F0297-00 [I,C*]; C08G0065-00 [I,C*]; C08G0065-02 [I,A]; C09K0011-06 [I,A]; C09K0011-06 [I,C*]; H05B0033-14 [I,A]; H05B0033-14 [I,C*]; H05B0033-22 [I,A]; H05B0033-22 [I,C*]; H01L0051-50 [I,C*]; H01L0051-50 [I,A]
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 38, 74
 ST hole transporting unit block copolymer
 electroluminescent device; electron transporting unit block copolymer electroluminescent device; phosphorescent unit block copolymer electroluminescent device; light source org electroluminescent device; illumination org electroluminescent device; org electroluminescent display block copolymer
 IT Light sources
 (block copolymers for organic EL device for display, illumination, and light source)
 IT Electroluminescent devices
 (displays; block copolymers for organic EL device for display, illumination, and light source)
 IT Luminescent screens
 (electroluminescent; block copolymers for organic EL device for display, illumination, and light source)
 IT Light
 (fluorescent; block copolymers for organic EL device for display, illumination, and light source)
 IT Electroluminescent devices
 (organic; block copolymers for organic EL device for display, illumination, and light source)
 IT 828940-06-3P 830318-16-6P 830318-18-8P 830318-20-2P 830318-21-3P 830318-22-4P 830318-25-7P 830318-26-8P 830318-27-9P 830318-28-0P 830318-29-1P
 (block copolymers for organic EL device for display, illumination, and light source)
 IT 94928-86-6 344796-22-1 344796-24-3 376367-93-0
 (phosphor; block copolymers for organic EL device for display, illumination, and light source)
 L66 ANSWER 7 OF 31 HCA COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 141:358036 HCA Full-text
 TITLE: Photoconductive imaging members with hole blocking layer from oxide, phenolic compound and phenolic resin
 INVENTOR(S): Wu, Jin; Hwang, Jennifer Y.; Lin, Liang-bih; Foley,

Geoffrey M. t.; Wilbert, John J.
PATENT ASSIGNEE(S): Xerox Corporation, USA
SOURCE: U.S. Pat. Appl. Publ., 11 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20040202947	A1	20041014	US 2003-410777	20030409 <--
US 6967069	B2	20051122		

PRIORITY APPLN. INFO.: US 2003-410777 20030409 <--

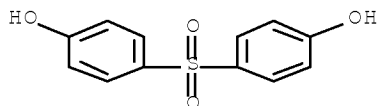
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB In a photoconductive imaging member including a hole blocking layer, a photogenerating layer, and a charge transport layer, the hole blocking layer contains, for example, a metal oxide dispersed in an in situ formed inorg./organic network. The inorg. component is preferably silica, titania or zirconia, and the organic component is a mixture of a phenolic compound and a phenolic resin, wherein the phenolic compound can contain, for example, at least two phenolic group. The SiO₂, TiO₂ or ZrO₂ may be formed by hydrolysis of a precursor during curing of the hole blocking layer composition

IT 80-09-1, Bisphenol S 25085-75-0
(hole blocking layer dispersion containing;
photoconductive imaging members with hole blocking
layer from oxide, phenolic compound and phenolic resin)

RN 80-09-1 HCA

CN Phenol, 4,4'-sulfonylbis- (CA INDEX NAME)

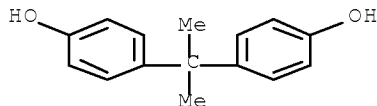


RN 25085-75-0 HCA

CN Formaldehyde, polymer with 4,4'-(1-methylethylidene)bis[phenol] (CA INDEX NAME)

CM 1

CRN 80-05-7
CMF C15 H16 O2



CM 2

CRN 50-00-0

CMF C H2 O

 $\text{H}_2\text{C}=\text{O}$

INCL 430059400; 430065000; 430058800
 IPCI G03G0005-14 [ICM,7]
 IPCR G03G0005-05 [I,C*]; G03G0005-05 [I,A]; G03G0005-14 [I,C*]; G03G0005-14 [I,A]
 NCL 430/059.400; 430/058.800; 430/065.000; 430/131.000
 CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 38
 IT 80-09-1, Bisphenol S 123-31-9, 1,4-Benzenediol, uses 154-23-4, Catechin 1314-23-4, Zirconia, uses 1478-61-1, 4, 4'-(Hexafluoroisopropylidene)diphenol 7631-86-9, Silica, uses 9039-25-2, Cresol-formaldehyde-phenol copolymer 13463-67-7, Titania, uses 25085-75-0 28453-20-5, Formaldehyde-p-tert.-butylphenol-phenol copolymer 68039-55-4, Ammonia-cresol-formaldehyde-phenol copolymer 741713-98-4, VARCUM 29159 (hole blocking layer dispersion containing; photoconductive imaging members with hole blocking layer from oxide, phenolic compound and phenolic resin)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1988			JP 63-284560	HCA
Itoh	2003			US 20030099889 A1	HCA
Keoshkerian	1996			US 5482811 A	HCA
Listigovers	1996			US 5521043 A	HCA
Mayo	1995			US 5473064 A	HCA
Murti	2000			US 6015645 A	HCA
Ong	2001			US 6287737 B1	HCA
Stolka	1981			US 4265990 A	HCA
Wu Jin	2003			US 10369816	
Yuh	2001			US 6261729 B1	HCA

OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD
 (4 CITINGS)

L66 ANSWER 8 OF 31 HCA COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 141:215563 HCA Full-text
 TITLE: Electrophotographic photoconductor for copying and printing with excellent photoinduced discharge characteristics, cyclic and environmental stability
 INVENTOR(S): Wu, Jin; Lin, Liang-Bih; Hwang, Jennifer Y.
 PATENT ASSIGNEE(S): Xerox Corporation, USA
 SOURCE: U.S. Pat. Appl. Publ., 11 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20040161684	A1	20040819	US 2003-369816	20030219 <--
US 6913863	B2	20050705		

January 3, 2011

10/581,005

36

JP 2004252460	A	20040909	JP 2004-42366	20040219 <--
JP 4263637	B2	20090513		
US 20050186493	A1	20050825	US 2005-90532	20050325 <--
US 7001700	B2	20060221		

PRIORITY APPLN. INFO.:

US 2003-369816

A 20030219 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S):

MARPAT 141:215563

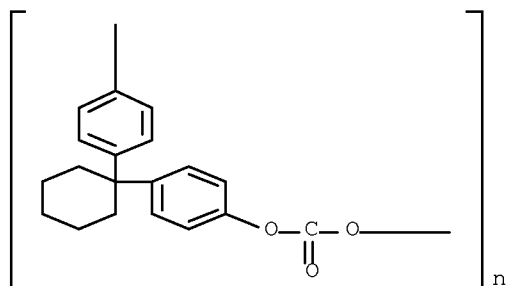
AB Electrophotog. photoconductor is described that has excellent photoinduced discharge characteristics, cyclic and environmental stability and acceptable charge deficient spot levels arising from dark injection of charge carriers. The photoconductor includes a mech. robust and solvent resistant polymeric hole blocking layer, a photogenerating layer, and a charge transport layer. The hole blocking layer that cures rapidly during fabrication and prevents or minimizes dark injection contains phenolic binders. Thus, the hole blocking layer contains a metal oxide and a phenolic compound/ phenolic resin blend, or a low. mol. weight phenolic resin/phenolic resin blend.

IT 25135-52-8, PCZ-400

(charge-transport layer binder; electrophotog. photoconductor
hole blocking layer containing metal oxide and phenolic
compound/ phenolic resin blend or blend of phenolic resins)

RN 25135-52-8 HCA

CN Poly(oxycarbonyloxy-1,4-phenylenecyclohexylidene-1,4-phenylene) (CA INDEX NAME)

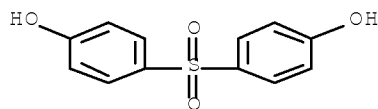


IT 80-09-1, Bisphenol S

(hole blocking layer; electrophotog. photoconductor
hole blocking layer containing metal oxide and phenolic
compound/ phenolic resin blend or blend of phenolic resins)

RN 80-09-1 HCA

CN Phenol, 4,4'-sulfonylbis- (CA INDEX NAME)



IT 9005-09-8, VMCH

(photogenerating layer binder; electrophotog. photoconductor
hole blocking layer containing metal oxide and phenolic
compound/ phenolic resin blend or blend of phenolic resins)

RN 9005-09-8 HCA

CN 2-Butenedioic acid (2Z)-, polymer with chloroethene and ethenyl acetate

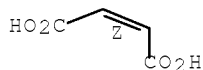
(CA INDEX NAME)

CM 1

CRN 110-16-7

CMF C4 H4 O4

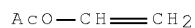
Double bond geometry as shown.



CM 2

CRN 108-05-4

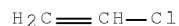
CMF C4 H6 O2



CM 3

CRN 75-01-4

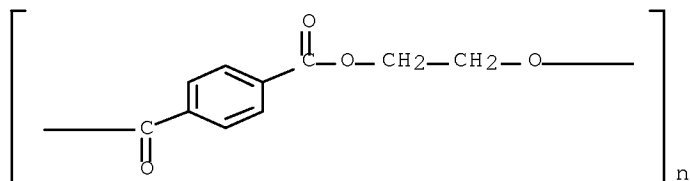
CMF C2 H3 Cl



IT 25038-59-9, Poly(ethylene terephthalate), uses
 (substrate; electrophotog. photoconductor having excellent photoinduced
 discharge characteristics and cyclic stability containing hole
 blocking layer with phenolic binders)

RN 25038-59-9 HCA

CN Poly(oxy-1,2-ethanediylloxycarbonyl-1,4-phenylenecarbonyl) (CA INDEX NAME)



INCL 430065000; 430058800; 430059400; 430059500; 430059100

IPCI G03G0005-14 [ICM, 7]

IPCR G03G0005-10 [I,C*]; G03G0005-10 [I,A]; G03G0005-14 [I,C*]; G03G0005-14
 [I,A]

NCL 430/065.000; 430/058.800; 430/059.100; 430/059.400; 430/059.500;
 430/123.400; 430/123.430; 430/131.000

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)

IT 25135-52-8, PCZ-400
 (charge-transport layer binder; electrophotog. photoconductor
 hole blocking layer containing metal oxide and phenolic
 compound/ phenolic resin blend or blend of phenolic resins)

IT 80-05-7, 4,4'-Isopropylidenediphenol, uses 80-09-1, Bisphenol S
 108-46-3, 1,3-Benzenediol, uses 620-92-8, Bis(4-hydroxyphenyl)methane
 843-55-0, Bisphenol Z 1478-61-1, 4,4'-(Hexafluoroisopropylidene)diphenol
 2081-08-5, 4,4'-Ethylidenediphenol 2167-51-3, Bisphenol P 7631-86-9,
 Silica, uses 13392-26-2 13595-25-0, Bisphenol M 741713-98-4, Varcum
 29159
 (hole blocking layer; electrophotog. photoconductor
 hole blocking layer containing metal oxide and phenolic
 compound/ phenolic resin blend or blend of phenolic resins)

IT 9005-09-8, VMCH
 (photogenerating layer binder; electrophotog. photoconductor
 hole blocking layer containing metal oxide and phenolic
 compound/ phenolic resin blend or blend of phenolic resins)

IT 25038-59-9, Poly(ethylene terephthalate), uses
 (substrate; electrophotog. photoconductor having excellent photoinduced
 discharge characteristics and cyclic stability containing hole
 blocking layer with phenolic binders)

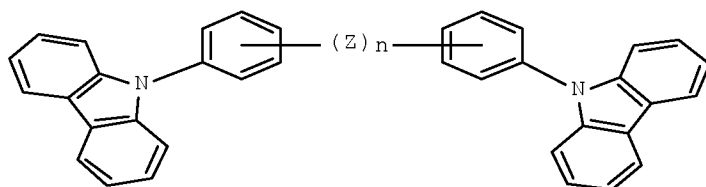
RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1988			JP 63284560 A	HCA
Diamond	2002		174	Handbook of Imaging	
Hor	1985			US 4555463 A	HCA
Hor	1986			US 4587189 A	HCA
Keoshkerian	1996			US 5482811 A	HCA
Listigovers	1996			US 5521043 A	HCA
Mayo	1995			US 5473064 A	HCA
Murti	2000			US 6015645 A	HCA
Nogami	1996			US 5561022 A	HCA
Ong	2001			US 6287737 B1	HCA
Stolka	1981			US 4265990 A	HCA
Wehelie	2000			US 6156468 A	CAPLUS
Wehelie	2001			US 6255027 B1	
Yashiki	1986			US 4579801 A	HCA
Yuh	1990			US 4921769 A	HCA
Yuh	2001			US 6177219 B1	HCA

OS.CITING REF COUNT: 46 THERE ARE 46 CAPLUS RECORDS THAT CITE THIS
 RECORD (48 CITINGS)

L66 ANSWER 9 OF 31 HCA COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 141:182064 HCA Full-text
 TITLE: Organic electroluminescent device showing stable
 operation for flat panel display
 INVENTOR(S): Yoneyama, Tomio; Sato, Itsuki; Sato, Hideki
 PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 38 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 2004220931	A	20040805	JP 2003-7300	20030115 <--
JP 4325197	B2	20090902		
PRIORITY APPLN. INFO.:			JP 2003-7300	20030115 <--
OTHER SOURCE(S):	MARPAT 141:182064			
GI				



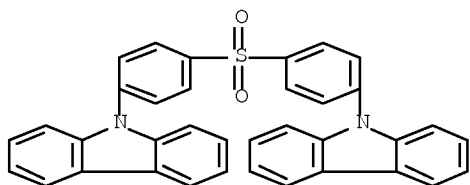
I

AB The title electroluminescent device includes a compound represented by I (Z = divalent connection group; n = 0-5) in a pos. hole blocking layer. The compds. were synthesized in the examples.

IT 733038-89-6P
(preparation of pos. hole blocking material for organic electroluminescent device showing stable operation for flat panel display)

RN 733038-89-6 HCA

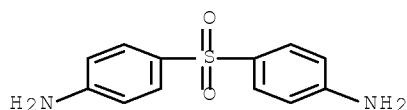
CN 9H-Carbazole, 9,9'-(sulfonyldi-4,1-phenylene)bis- (9CI) (CA INDEX NAME)



IT 80-08-0, Bis(4-aminophenyl)sulfone
(preparation of pos. hole blocking material for organic electroluminescent device showing stable operation for flat panel display)

RN 80-08-0 HCA

CN Benzenamine, 4,4'-sulfonylbis- (CA INDEX NAME)



IPCI H01L0051-50 [I,A]; C07D0403-10 [I,A]; C07D0403-12 [I,A]; C07D0403-00 [I,C*]; C07D0413-10 [I,A]; C07D0413-00 [I,C*]; C09K0011-06 [I,A]
IPCR C07D0403-00 [I,C*]; C07D0403-10 [I,A]; C07D0403-12 [I,A]; C07D0413-00 [I,C*]; C07D0413-10 [I,A]; C09K0011-06 [I,A]; C09K0011-06 [I,C*]; H05B0033-14 [I,A]; H05B0033-14 [I,C*]; H05B0033-22 [I,A]; H05B0033-22 [I,C*]; H01L0051-50 [I,C]; H01L0051-50 [I,A]
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 73
IT 733038-87-4P ~~733038-89-6P~~ 733038-91-0P
(preparation of pos. hole blocking material for organic electroluminescent device showing stable operation for flat panel display)
IT ~~80-08-0~~, Bis(4-aminophenyl)sulfone 86-74-8, Carbazole 341-58-2, 4,4'-Diamino-2,2'-bis(trifluoromethyl)biphenyl 2425-95-8, 2,5-Bis(4-aminophenyl)-1,3,4-oxadiazole 7681-11-0, Potassium iodide, reactions
(preparation of pos. hole blocking material for organic electroluminescent device showing stable operation for flat panel display)
OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

L66 ANSWER 10 OF 31 HCA COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 141:147906 HCA Full-text
TITLE: Organic light emitting diode device with organic hole transporting material and phosphorescent material
INVENTOR(S): Lee, Yung-Chih; Chen, Wei-Su; Liao, Chi-Chih; Lee, Jiun-Haw
PATENT ASSIGNEE(S): Ritdisplay Corp., Taiwan
SOURCE: U.S. Pat. Appl. Publ., 7 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
US 20040144974	A1	20040729	US 2003-248553	20030129 <--
US 6822257	B2	20041123		

PRIORITY APPLN. INFO.: US 2003-248553 20030129 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

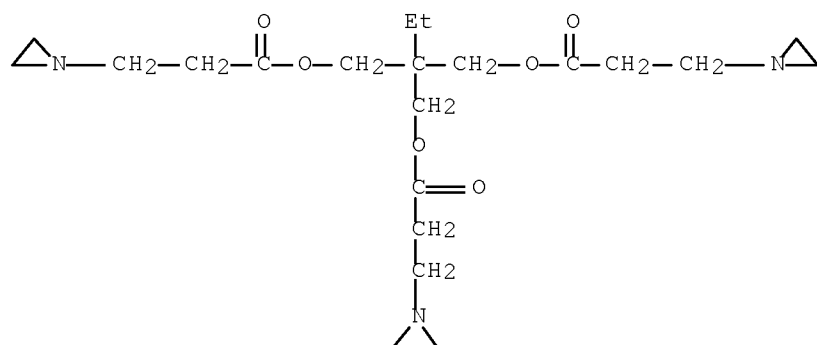
AB An organic light emitting diode (OLED) device that comprises a substrate, an anode layer, a light-emitting layer, a hole blocking layer and a cathode layer. The anode layer is positioned over the substrate and the light-emitting layer is positioned over the anode layer. The hole blocking layer is positioned over the light-emitting layer and the cathode layer is positioned over the hole blocking layer. The light-emitting layer is an organic material layer consisted of hole transporting material and phosphorescent material and that the concentration of hole transporting material and phosphorescent material in the organic material layer is between 40% to 60% by weight

IT ~~52234-82-9~~, TAZ
(organic light emitting diode device with organic hole transporting material and phosphorescent material)

RN 52234-82-9 HCA

CN 1-Aziridinepropanoic acid, 1,1'-[2-[[3-(1-aziridiny1)-1-oxopropoxy]methyl]-

2-ethyl-1,3-propanediyl] ester (CA INDEX NAME)



INCL 257040000; 257082000; 257184000
 IPCI H01L0035-24 [ICM,7]; H01L0035-12 [ICM,7,C*]; H01L0051-00 [ICS,7];
 H01L0027-15 [ICS,7]; H01L0031-12 [ICS,7]
 IPCR H01L0051-05 [N,C*]; H01L0051-30 [N,A]; H01L0051-50 [I,C*]; H01L0051-50
 [I,A]; H01L0051-00 [N,C*]; H01L0051-00 [N,A]
 NCL 257/040.000; 257/082.000; 257/184.000; 257/079.000; 257/098.000;
 257/099.000; 257/102.000; 257/103.000
 CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)
 Section cross-reference(s): 76
 ST org light emitting diode device hole transporting
 phosphorescent material; OLED hole transporting
 phosphorescent material
 IT Electroluminescent devices
 Hole (electron)
 Phosphorescent substances
 Phosphors
 (organic light emitting diode device with organic hole
 transporting material and phosphorescent material)
 IT 119-65-3D, Isoquinoline, iridium complexes 147-14-8, Copper
 phthalocyanine 841-73-6, BCP 2085-33-8 7429-90-5, Aluminum, uses
 7439-88-5D, Iridium, isoquinoline complexes 7440-70-2, Calcium, uses
 15082-28-7, PBD 37271-44-6 37275-76-6, Aluminum zinc oxide
 50926-11-9, Indium tin oxide 52234-82-9, TAZ 65181-78-4, TPD
 117944-65-7, Indium zinc oxide 123847-85-8, NPB 124729-98-2, m-MTDATA
 146162-54-1, Balq 148896-39-3 192198-85-9, TPBI
 (organic light emitting diode device with organic hole
 transporting material and phosphorescent material)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Adachi	2002			US 20020180347 A1	HCA
Adachi	2003			US 6573651 B2	HCA
Baldo	2000			US 6097147 A	HCA
Bellmann	2003			US 20030068525 A1	HCA
Hsieh	2003			US 20030162299 A1	HCA
Kwong	2002			US 20020074935 A1	HCA
Li	2003			US 20030138657 A1	HCA
Mishima	2002			US 20020096995 A1	HCA
Mori	2004			US 20040028944 A1	HCA
Sato	2003			US 20030218418 A9	HCA

January 3, 2011

10/581,005

42

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD
(2 CITINGS)

L66 ANSWER 11 OF 31 HCA COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 140:189702 HCA Full-text
TITLE: Polynuclear metal complexes as phosphorescence
emitters in electroluminescent layer
arrangements
INVENTOR(S): Heuer, Helmut-Werner; Wehrmann, Rolf; Sautter, Armin
PATENT ASSIGNEE(S): Germany
SOURCE: U.S. Pat. Appl. Publ., 30 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20040026663	A1	20040212	US 2003-635842	20030806 <--
EP 1394171	A1	20040303	EP 2003-17031	20030728 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CA 2436658	A1	20040209	CA 2003-2436658	20030806 <--
JP 2004075681	A	20040311	JP 2003-206477	20030807 <--
KR 2004014346	A	20040214	KR 2003-54907	20030808 <--
PRIORITY APPLN. INFO.:			DE 2002-10236538	A 20020809 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

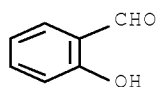
OTHER SOURCE(S): MARPAT 140:189702

AB Polynuclear metal complexes of the general formula (LmMe-HL)n-XL, a process for their preparation and their use as phosphorescence emitters in electroluminescent layer arrangements are described, where Me is a transition metal, L is a bidentate chelate-forming ligand, HL is a bidentate chelate-forming ligand which complexes the transition metal Me and is addnl. bonded to a linker XL, XL is an n-functional linker and is covalently bonded to n auxiliary ligands HL, n is an integer from 2 to 6 and m is an integer from 1 to 3.

IT 90-02-8, 2-Hydroxybenzaldehyde, reactions
(polynuclear metal complexes, their preparation and use as phosphorescence emitters in electroluminescent layer arrangements)

RN 90-02-8 HCA

CN Benzaldehyde, 2-hydroxy- (CA INDEX NAME)



INCL 252301160; 428690000; 556018000

IPCI C09K0011-06 [ICM,7]; C07F0001-00 [ICS,7]

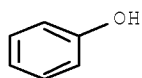
IPCR H05B0033-10 [I,C*]; H05B0033-10 [I,A]; C07B0061-00 [I,C*]; C07B0061-00 [I,A]; C07C0249-00 [I,C*]; C07C0249-02 [I,A]; C07C0251-00 [I,C*]; C07C0251-24 [I,A]; C07D0213-00 [I,C*]; C07D0213-16 [I,A]; C07D0213-26 [I,A]; C07D0409-00 [I,C*]; C07D0409-04 [I,A]; C07F0005-00 [I,C*]; C07F0005-00 [I,A]; C07F0015-00 [I,C*]; C07F0015-00 [I,A]; C09K0011-06 [I,C*]; C09K0011-06 [I,A]; H01L0051-00 [I,C*]; H01L0051-00 [I,A]; H01L0051-05 [I,C*]; H01L0051-30 [I,A]; H01L0051-50 [I,C*]; H01L0051-50

- [I,A]
NCL 252/301.160; 428/690.000; 556/018.000
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76, 78
ST polynuclear metal complex phosphorescence
electroluminescent device
IT Amines, uses
(aromatic, hole-conducting layer; polynuclear metal complexes, their preparation and use as phosphorescence emitters in electroluminescent layer arrangements)
IT Amines, uses
(aryl, tertiary, polynuclear metal complex-doped; polynuclear metal complexes, their preparation and use as phosphorescence emitters in electroluminescent layer arrangements)
IT Luminescent substances
(electroluminescent; polynuclear metal complexes, their preparation and use as phosphorescence emitters in electroluminescent layer arrangements)
IT Polymers, uses
(polynuclear metal complex-doped; polynuclear metal complexes, their preparation and use as phosphorescence emitters in electroluminescent layer arrangements)
IT Electroluminescent devices
Phosphorescent substances
(polynuclear metal complexes, their preparation and use as phosphorescence emitters in electroluminescent layer arrangements)
IT Transition metal complexes
(polynuclear metal complexes, their preparation and use as phosphorescence emitters in electroluminescent layer arrangements)
IT Coordination compounds
(polynuclear; polynuclear metal complexes, their preparation and use as phosphorescence emitters in electroluminescent layer arrangements)
IT Conducting polymers
(polythiophenes, cationic, hole-injecting layer; polynuclear metal complexes, their preparation and use as phosphorescence emitters in electroluminescent layer arrangements)
IT 124-41-4, Sodium methanolate 497-19-8, Sodium carbonate (Na₂CO₃), uses 584-08-7, Potassium carbonate (K₂CO₃)
(base, polynuclear metal complex prepared using; polynuclear metal complexes, their preparation and use as phosphorescence emitters in electroluminescent layer arrangements)
IT 4733-39-5, 2,9-Dimethyl-4,7-diphenyl[1,10]phenanthroline 34777-53-2 150405-69-9, TAZ 399038-18-7
(hole-blocking layer; polynuclear metal complexes, their preparation and use as phosphorescence emitters in electroluminescent layer arrangements)
IT 188049-41-4
(hole-blocking or electron-transport layer; polynuclear metal complexes, their preparation and use as phosphorescence emitters in electroluminescent layer arrangements)
IT 15082-28-7, 2-(4-Biphenyl)-5-(4-tert-butylphenyl)-1,3,4-oxadiazole 25067-59-8, Poly-N-vinylcarbazole 25190-62-9, Poly(1,4-phenylene) 58328-31-7 99627-56-2, Poly(9H-fluorene-2,7-diyl)
(polynuclear metal complex-doped; polynuclear metal complexes, their preparation and use as phosphorescence emitters in

electroluminescent layer arrangements)
IT 7439-88-5DP, Iridium, compds. 7440-06-4DP, Platinum, compds.
(polynuclear metal complexes, their preparation and use as
phosphorescence emitters in electroluminescent layer
arrangements)
IT 67360-21-8P 116563-50-9P 658042-18-3P
(polynuclear metal complexes, their preparation and use as
phosphorescence emitters in electroluminescent layer
arrangements)
IT 4434-23-5P 17911-94-3P 20425-75-6P 658042-16-1P 658042-17-2P
658043-91-5P 658043-92-6P 658043-93-7P 658043-94-8P 658043-95-9P
(polynuclear metal complexes, their preparation and use as
phosphorescence emitters in electroluminescent layer
arrangements)
IT 90-02-8, 2-Hydroxybenzaldehyde, reactions 101-77-9 108-45-2,
m-Phenylenediamine, reactions 646-25-3, 1,10-Decanediamine 2479-47-2
2783-17-7, 1,12-Diaminododecane 3377-24-0 4097-89-6 85642-05-3
118727-34-7, 1,3,5-Tris(4-aminophenyl)benzene 343978-72-3 417705-49-8
(polynuclear metal complexes, their preparation and use as
phosphorescence emitters in electroluminescent layer
arrangements)
OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
(1 CITINGS)

L66 ANSWER 12 OF 31 HCA COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 140:67611 HCA Full-text
TITLE: Direct current chargeable electrophotographic
photoreceptor with intermediate layer
INVENTOR(S): Tanabe, Tsuyoshi; Nakamura, Kazunari; Uesugi,
Hirotooshi
PATENT ASSIGNEE(S): Canon Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 2004004292	A	20040108	JP 2002-159720	20020531 <--
PRIORITY APPLN. INFO.:			JP 2002-159720	20020531 <--
AB	The d.c direct-charging photoreceptor without charge-removing process comprises an electroconductive support successively coated with an intermediate layer with hole-blocking property containing metal oxide, a charge-generating layer and a charge-transporting layer. The electrophotog. apparatus having d.c. charging roller and the above photoreceptor and without charge removing means is also claimed. Image deterioration caused by charging unevenness is prevented.			
IT	9003-35-4, Plyophen J 325 (d.c. chargeable electrophotog. photoreceptor having intermediate layer with hole-blocking property)			
RN	9003-35-4 HCA			
CN	Phenol, polymer with formaldehyde (CA INDEX NAME)			
CM	1			
CRN	108-95-2			
CMF	C6 H6 O			



CM 2

CRN 50-00-0

CMF C H2 O

 $\text{H}_2\text{C}=\text{O}$

IPCI G03G0005-14 [ICM,7]; G03G0005-06 [ICS,7]; G03G0005-10 [ICS,7]; G03G0015-02 [ICS,7]

IPCR G03G0005-14 [I,C*]; G03G0005-14 [I,A]; G03G0005-06 [I,C*]; G03G0005-06 [I,A]; G03G0005-10 [I,C*]; G03G0005-10 [I,A]; G03G0015-02 [I,C*]; G03G0015-02 [I,A]

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 9003-35-4, Plyophen J 325

(d.c. chargeable electrophotog. photoreceptor having intermediate layer with hole-blocking property)

L66 ANSWER 13 OF 31 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 138:245268 HCA Full-text

TITLE: New class of ~~hole-blocking~~
amorphous molecular materials and their application in
blue-violet-emitting fluorescent and green-emitting
phosphorescent organic
electroluminescent devices

AUTHOR(S): Okumoto, Kenji; Shirota, Yasuhiko

CORPORATE SOURCE: Department of Applied Chemistry, Faculty of
Engineering, Osaka University, Yamadaoka, Suita,
Osaka, 565-0871, Japan

SOURCE: Chemistry of Materials (2003), 15(3),
699-707

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

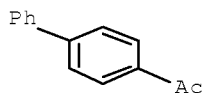
DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new class of ~~hole-blocking~~ amorphous mol. materials for use in organic electroluminescent (EL) devices were developed, which include 1,3,5-tri(4-biphenyl)benzene, 1,3,5-tris(4-fluorobiphenyl-4'-yl)benzene (F-TBB), 1,3,5-tris(9,9-dimethylfluoren-2-yl)benzene, and 1,3,5-tris[4-(9,9-dimethylfluoren-2-yl)phenyl]benzene. They readily form stable amorphous glasses with well-defined glass-transition temps. and are characterized by relatively high oxidation potentials and large HOMO-LUMO energy gaps. The use of these materials as ~~hole blockers~~ enabled blue-violet emission from several emitting amorphous mol. materials with hole-transporting properties in organic EL devices. A multilayer organic EL device using N,N-bis(9,9-dimethylfluoren-2-yl)aniline (F2PA) as a blue-violet emitter, F-TBB as a ~~hole blocker~~, and 4,4',4''-tris[3-methylphenyl(phenyl)amino]triphenylamine and tris(8-quinolinolato)aluminum as hole and electron transporters, resp., exhibited blue-violet emission peaking at 405 nm with a high external quantum efficiency

of 1.95%. This device also enabled the doping of a phosphorescent Ir complex, tris(2-phenylpyridine)iridium (Ir(ppy)3), tuning the emission color from blue violet to green by excitation energy transfer from F2PA to Ir(ppy)3.

- IT 92-91-1, 4-Acetylbiphenyl
(synthesis of TBB; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- RN 92-91-1 HCA
- CN Ethanone, 1-[1,1'-biphenyl]-4-yl- (CA INDEX NAME)



- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 22, 72, 76
- ST amorphous hole blocking org material synthesis;
fluorescent phosphorescent light emitting device
- IT LUMO (molecular orbital)
(HOMO gap; of organic hole blocking and light-emitting materials)
- IT HOMO (molecular orbital)
(LUMO gap; of organic hole blocking and light-emitting materials)
- IT Electronic excitation
Fluorescence
(absorption and fluorescence maxima of organic hole blocking and light-emitting materials)
- IT Oxidation potential
(half-wave; of organic hole blocking and light-emitting materials)
- IT Luminescence, electroluminescence
(of electroluminescent devices containing organic hole blocking and light-emitting materials)
- IT Glass transition temperature
HOMO (molecular orbital)
LUMO (molecular orbital)
(of organic hole blocking and light-emitting materials)
- IT Half wave potential
(oxidation; of organic hole blocking and light-emitting materials)
- IT Electroluminescent devices
Hole (electron)
(synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 50926-11-9, Indium tin oxide
(anode; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 37271-44-6
(cathode; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)

- IT 6326-64-3P 372956-40-6P 441352-90-5P 441352-91-6P
(hole blocking material; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 65181-78-4, TPD
(light emitting material; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 134008-76-7P 165320-27-4P 246857-02-3P
(light emitting material; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 94928-86-6
(phosphorescent organic electroluminescent device; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 151417-38-8P, 1,3,5-Tris(4-iodophenyl)benzene
(reactant for synthesis of F-TBB, TFPB; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 144981-85-1P, 9,9-Dimethyl-2-iodofluorene
(reactant for synthesis of F2PA; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 16218-28-3P, 2,7-Diiodofluorene 355832-04-1P, N-(9,9-Dimethylfluoren-2-yl)aniline
(reactant for synthesis of PFFA; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 612-71-5, 1,3,5-Triphenylbenzene
(synthesis of 1,3,5-tris(4-iodophenyl)benzene; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 7553-56-2, Iodine, reactions 10450-60-9, Periodic acid (H5IO6)
(synthesis of 2-iodofluorene, 2,7-diiodofluorene, 1,3,5-tris(4-iodophenyl)benzene; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 86-73-7, Fluorene
(synthesis of 2-iodofluorene, 2,7-diiodofluorene; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 74-88-4, Methyl iodide, reactions 865-47-4
(synthesis of 9,9-dimethyl-2-iodofluorene, 9,9-dimethyl-2,7-diiodofluorene; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 2523-42-4P, 2-Iodofluorene
(synthesis of 9,9-dimethyl-2-iodofluorene,

- 9,9-dimethyl-2,7-diiodofluorene; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 14221-01-3, Tetrakis(triphenylphosphine)palladium (synthesis of F-TBB, TFB, TFPB; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 1765-93-1, 4-Fluorophenylboronic acid (synthesis of F-TBB; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 108-67-8, Mesitylene, uses (synthesis of F2PA, p-BPD, PFFA; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 7440-50-8, Copper, uses (synthesis of N-(9,9-Dimethylfluoren-2-yl)aniline, 1,3,5-tris(4-iodophenyl)benzene, PFFA; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 62-53-3, Aniline, reactions (synthesis of N-(9,9-Dimethylfluoren-2-yl)aniline, F2PA; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 144981-86-2P, 9,9-Dimethyl-2,7-diiodofluorene (synthesis of N-(9,9-Dimethylfluoren-2-yl)aniline; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 92-91-1, 4-Acetylbiphenyl 1493-13-6 (synthesis of TBB; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 333432-28-3 (synthesis of TFB, TFPB; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 626-39-1, 1,3,5-Tribromobenzene (synthesis of TFB; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 2085-33-8, AlQ3 124729-98-2 (synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 1591-31-7, 4-Iodobiphenyl 84161-87-5, N,N-Diphenylbenzidine (synthesis of p-BPD; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
=====	=====	=====	=====	=====	=====
Adachi, C	1990	56	799	Appl Phys Lett	HCA

Baldo, M	1999	75	4	Appl Phys Lett	HCA
Baldo, M	1999	75	4	Appl Phys Lett	HCA
Baldo, M	1998	395	151	Nature	HCA
Chan, L	2001	13	1637	Adv Mater	HCA
Garten, F	1997	85	1253	Synth Met	HCA
Grem, G	1992	4	36	Adv Mater	HCA
Hamada, Y	1992	31	1812	Jpn J Appl Phys	HCA
Hoshino, S	2000	87	1968	J Appl Phys	HCA
Hosokawa, C	1995	67	3853	Appl Phys Lett	HCA
Huang, J	1997	87	105	Synth Met	HCA
Ikai, M	2001	79	156	Appl Phys Lett	HCA
Ishikawa, W	1991		1731	Chem Lett	HCA
Ishikawa, W	1993	26	B94	J Phys D	HCA
Jiang, X	2000	76	1813	Appl Phys Lett	HCA
Kido, J	1993	63	2627	Appl Phys Lett	HCA
Kido, J	1996		47	Chem Lett	HCA
Kido, J	1993	32	L917	Jpn J Appl Phys	HCA
Kijima, Y	1999	38	5274	Jpn J Appl Phys	HCA
Kinoshita, M	2001		614	Chem Lett	HCA
Kuwabara, Y	1994	6	677	Adv Mater	HCA
Lamansky, S	2001	123	4304	J Am Chem Soc	HCA
Lee, C	2000	77	2280	Appl Phys Lett	HCA
Mitschke, U	2000	10	1471	J Mater Chem	HCA
Noda, T	1999	11	283	Adv Mater	HCA
Noda, T	2000	87-89	1168	J Lumin	HCA
Ogawa, H	1997	91	243	Synth Met	HCA
Ohmori, Y	1991	30	L1941	Jpn J Appl Phys	
Okumoto, K	2001	79	1231	Appl Phys Lett	HCA
Okumoto, K	2001		1034	Chem Lett	
Okumoto, K	2001	85	135	Mater Sci Eng B	
Robinson, M	2001	11	413	Adv Funct Mater	HCA
Romero, D	1997	9	1158	Adv Mater	HCA
Salbeck, J	1997	91	209	Synth Met	HCA
Shirota, Y	1994	65	807	Appl Phys Lett	HCA
Shirota, Y	1989		1145	Chem Lett	HCA
Shirota, Y	2000	122	11021	J Am Chem Soc	HCA
Shirota, Y	2000	10	1	J Mater Chem	HCA
Shirota, Y	2000	111-1	387	Synth Met	HCA
Stolka, M	1984	88	4707	J Phys Chem	HCA
Tang, B	2001	11	2974	J Mater Chem	HCA
Ueta, E	1994		2397	Chem Lett	HCA
Wu, C	2002	81	577	Appl Phys Lett	HCA
Yang, Y	1996	79	934	J Appl Phys	HCA
Zou, L	2001	79	2282	Appl Phys Lett	HCA

OS.CITING REF COUNT: 68 THERE ARE 68 CAPLUS RECORDS THAT CITE THIS RECORD (71 CITINGS)

L66 ANSWER 14 OF 31 HCA COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 137:391797 HCA Full-text
 TITLE: High-efficiency organic electroluminescent devices using iridium complex emitter and arylamine-containing polymer buffer layer
 AUTHOR(S): Fukase, Akio; Luan, Kinh; Dao, Thanh; Kido, Junji
 CORPORATE SOURCE: Graduate School of Science and Engineering, Yamagata University, Yamagata, 992-8510, Japan
 SOURCE: Polymers for Advanced Technologies (2002), 13(8), 601-604
 CODEN: PADTE5; ISSN: 1042-7147
 PUBLISHER: John Wiley & Sons Ltd.
 DOCUMENT TYPE: Journal

LANGUAGE: English

AB Efficient organic electroluminescent (EL) devices were fabricated using a phosphorescent complex, tris(2-phenylpyridine)-iridium, Ir(ppy)3, as emitter and a buffer layer of tetraphenyldiamine-containing poly(arylene ether sulfone) (PTPDES) doped with tris(4-bromophenyl) aminium hexachloroantimonate (TBPAAH) as electron acceptor. The complete device structure comprises glass substrate, ITO and Al electrodes and the active layers. Hole-transporting N,N'-di(1-naphthyl)-N,N'-diphenylbenzidine (α -NPD) was used as host for the emitter layer; 4,4'-N,N'-dicarbazolylbiphenyl (CBP), Ir(ppy)3, hole-blocking 2,9-dimethyl-4,7-diphenyl-1,10-phenanthroline (BCP), and electron-transporting tris(8-quinolinato)aluminum (III) (Alq3) were also included in the structure. The device demonstrated external quantum efficiency of 21.6% and luminous efficiency of 82 lm/W (77 cd/A) at 3.0 V. The high efficiency is due to the high quantum efficiency of phosphorescent Ir(ppy)3 and high luminous efficiency realized by the use of the polymer buffer layer.

IT 173394-17-7 173394-18-8

(PTPDES, anode buffer layer; electroluminescent devices with Ir-phenylpyridine/dicarbazolylbiphenyl emitter and poly(aminophenylene-ether-sulfone) buffer layer)

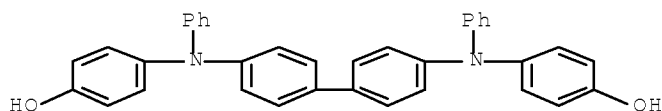
RN 173394-17-7 HCA

CN Phenol, 4,4'-[[1,1'-biphenyl]-4,4'-diylbis(phenylimino)]bis-, polymer with 1,1'-sulfonylbis[4-fluorobenzene] (CA INDEX NAME)

CM 1

CRN 121333-95-7

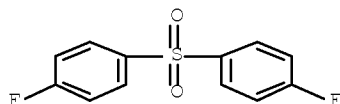
CMF C36 H28 N2 O2



CM 2

CRN 383-29-9

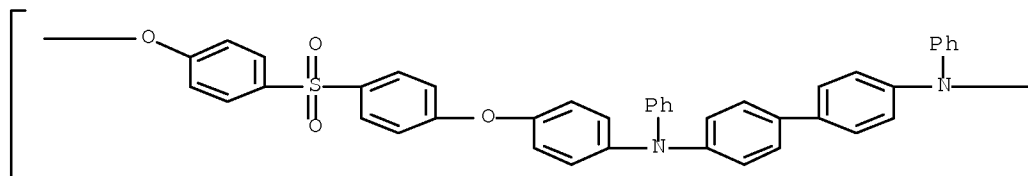
CMF C12 H8 F2 O2 S



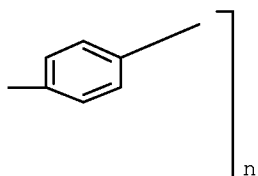
RN 173394-18-8 HCA

CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene(phenylimino)[1,1'-biphenyl]-4,4'-diyl(phenylimino)-1,4-phenylene] (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



- CC 76-5 (Electric Phenomena)
Section cross-reference(s): 38, 73
- ST iridium phenylpyridine emitter aminium polyaryleneethersulfone acceptor
electroluminescent device; naphthylphenylbenzidine
dicarbazolylbiphenyl iridium phenylpyridine quantum efficiency device;
quinolinatoaluminum electron transport layer iridium phenylpyridine
electroluminescent device
- IT Electroluminescent devices
Electron acceptors
Glass substrates
Phosphorescence
(electroluminescent devices with
Ir-phenylpyridine/dicarbazolylbiphenyl emitter and
poly(aminophenylene-ether-sulfone) buffer layer)
- IT Polysulfones, uses
(polyamine-polyether-, PTPDES, anode buffer layer;
electroluminescent devices with
Ir-phenylpyridine/dicarbazolylbiphenyl emitter and
poly(aminophenylene-ether-sulfone) buffer layer)
- IT Polyethers, uses
(polyamine-polysulfone-, PTPDES, anode buffer layer;
electroluminescent devices with
Ir-phenylpyridine/dicarbazolylbiphenyl emitter and
poly(aminophenylene-ether-sulfone) buffer layer)
- IT Polyamines
(polyether-polysulfone-, PTPDES, anode buffer layer;
electroluminescent devices with
Ir-phenylpyridine/dicarbazolylbiphenyl emitter and
poly(aminophenylene-ether-sulfone) buffer layer)
- IT 24964-91-8, Tris(4-bromophenyl)aminium hexachloroantimonate
(Lewis acid dopant, PTPDES oxidant; electroluminescent
devices with Ir-phenylpyridine/dicarbazolylbiphenyl emitter and
poly(aminophenylene-ether-sulfone) buffer layer)
- IT 173394-17-7 173394-18-8
(PTPDES, anode buffer layer; electroluminescent devices with
Ir-phenylpyridine/dicarbazolylbiphenyl emitter and

poly(aminophenylene-ether-sulfone) buffer layer)

IT 50926-11-9, ITO
(anode; ~~electroluminescent~~ devices with
Ir-phenylpyridine/dicarbazolylbiphenyl emitter and
poly(aminophenylene-ether-sulfone) buffer layer)

IT 7789-24-4, Lithium fluoride (LiF), uses
(cathode interface layer; ~~electroluminescent~~ devices with
Ir-phenylpyridine/dicarbazolylbiphenyl emitter and
poly(aminophenylene-ether-sulfone) buffer layer)

IT 7429-90-5, Aluminum, uses
(cathode; ~~electroluminescent~~ devices with
Ir-phenylpyridine/dicarbazolylbiphenyl emitter and
poly(aminophenylene-ether-sulfone) buffer layer)

IT 2085-33-8, Tris(8-quinolinolato)aluminum
(electron transport layer; ~~electroluminescent~~ devices with
Ir-phenylpyridine/dicarbazolylbiphenyl emitter and
poly(aminophenylene-ether-sulfone) buffer layer)

IT 94928-86-6, Tris(2-phenylpyridine)iridium
(emitter layer dopant; ~~electroluminescent~~ devices with
Ir-phenylpyridine/dicarbazolylbiphenyl emitter and
poly(aminophenylene-ether-sulfone) buffer layer)

IT 4733-39-5, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline
(hole blocking layer; ~~electroluminescent~~
devices with Ir-phenylpyridine/dicarbazolylbiphenyl emitter and
poly(aminophenylene-ether-sulfone) buffer layer)

IT 123847-85-8, N,N'-Di(1-naphthyl)-N,N'-diphenylbenzidine
(hole transport layer; ~~electroluminescent~~ devices with
Ir-phenylpyridine/dicarbazolylbiphenyl emitter and
poly(aminophenylene-ether-sulfone) buffer layer)

IT 58328-31-7, 4,4'-N,N'-Dicarbazolylbiphenyl
(host emitter layer; ~~electroluminescent~~ devices with
Ir-phenylpyridine/dicarbazolylbiphenyl emitter and
poly(aminophenylene-ether-sulfone) buffer layer)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Arai, M	1997	91	21	Synth Met	HCA
Baldo, M	1999	75	4	Appl Phys Lett	HCA
Berntsen, A	1998	9	125	Opt Mater	HCA
Hung, L	1997	70	152	Appl Phys Lett	HCA
Itoh, Y	1990			Ext Abstr (51st Autu	
Kido, J	1998	73	2721	Appl Phys Lett	HCA
Kido, J	1993	40	1342	IEEE Trans Electron	HCA
Kido, J	1995	7	31	Polym Adv Technol	
Sato, Y	2000	4105	134	Proc Soc of Photo-Op	
Tang, C	1987	51	913	Appl Phys Lett	HCA
VanSlyke, S	1996	69	2160	Appl Phys Lett	HCA
Wakimoto, T	1997	44	1245	IEEE Trans Electron	HCA
Yamamori, A	1999	86	4369	J Appl Phys	HCA
Yang, Y	1995	77	694	J Appl Phys	HCA

OS.CITING REF COUNT: 14 THERE ARE 14 CAPLUS RECORDS THAT CITE THIS
RECORD (14 CITINGS)

L66 ANSWER 15 OF 31 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 137:377262 HCA Full-text

TITLE: High efficiency multi-color electro-
phosphorescent OLEDs

INVENTOR(S): D'Andrade, Brian; Thompson, Mark E.; Forrest, Stephen
R.

PATENT ASSIGNEE(S): The Trustees of Princeton University, USA; The University of Southern California
 SOURCE: PCT Int. Appl., 50 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002091814	A2	20021121	WO 2002-US14956	20020513 <--
WO 2002091814	A3	20030327		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, GR, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GN, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2002305548	A1	20021125	AU 2002-305548	20020513 <--
US 20020197511	A1	20021226	US 2002-144419	20020513 <--
US 7009338	B2	20060307		
EP 1390962	A2	20040225	EP 2002-734378	20020513 <--
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
JP 2004522276	T	20040722	JP 2002-588742	20020513 <--
JP 4493915	B2	20100630		
CN 1543659	A	20041103	CN 2002-811783	20020513 <--
CN 1302565	C	20070228		
EP 2259285	A2	20101208	EP 2010-181013	20020513 <--
R:	AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE, TR, AL, LT, LV, MK, RO, SI			
KR 888424	B1	20090311	KR 2003-7014984	20031117 <--
IN 2003DN01950	A	20051216	IN 2003-DN1950	20031118 <--
US 20050282036	A1	20051222	US 2005-211385	20050824 <--
US 7285907	B2	20071023		
PRIORITY APPLN. INFO.:			US 2001-291496P	P 20010516 <--
			EP 2002-734378	A3 20020513 <--
			US 2002-144419	A1 20020513 <--
			WO 2002-US14956	W 20020513 <--

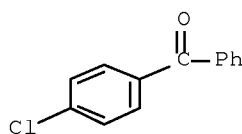
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB An organic light emitting device is described comprising an anode; a hole transporting layers; an emissive region; an electron transporting layer; and a cathode; wherein the emissive region is comprising a host material and a multiple emissive dopants to generate white emission, and wherein the emissive region is comprising a multiple bands and each emissive dopant is doped into a sep. band within the emissive region, and wherein at least one of the emissive dopants emits light by phosphorescence.

IT 134-85-0
 (red emission layer; high efficiency multi-color electro-phosphorescent organic LEDs)

RN 134-85-0 HCA

CN Methanone, (4-chlorophenyl)phenyl- (CA INDEX NAME)



IPCI H01L [ICM]
 IPCR C09K0011-06 [I,C*]; C09K0011-06 [I,A]; H01J0001-00 [I,C*]; H01J0001-74 [I,A]; H01J0029-18 [I,C*]; H01J0029-32 [I,A]; H01L0051-50 [I,C*]; H01L0051-50 [I,A]; H05B0033-14 [I,C*]; H05B0033-14 [I,A]
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 76
 ST electro phosphorescence light emitting diode
 multi color
 IT Electroluminescent devices
 (high efficiency multi-color electro-phosphorescent organic LEDs)
 IT 376367-93-0
 (blue phosphor dopant; high efficiency multi-color electro-phosphorescent organic LEDs)
 IT 7429-90-5, Aluminum, uses
 (cathode; high efficiency multi-color electro-phosphorescent organic LEDs)
 IT 94928-86-6
 (green emission dopant; high efficiency multi-color electro-phosphorescent organic LEDs)
 IT 2085-33-8, Alq3 7789-24-4, Lithium fluoride (LiF), uses 16152-10-6 50851-57-5, Poly(styrene sulfonic acid) 50926-11-9, Indium tin oxide 123847-85-8, α -NPD 126213-51-2, PEDOT 337526-88-2
 (high efficiency multi-color electro-phosphorescent organic LEDs)
 IT 4733-39-5, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline
 (hole-blocking layer; high efficiency multi-color electro-phosphorescent organic LEDs)
 IT 134-85-0
 (red emission layer; high efficiency multi-color electro-phosphorescent organic LEDs)
 IT 343978-79-0
 (red emissive layer dopant; high efficiency multi-color electro-phosphorescent organic LEDs)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon				US 5707745 A	HCA
Anon				US 5837391 A	HCA
OS.CITING REF COUNT:	30	THERE ARE 30 CAPLUS RECORDS THAT CITE THIS RECORD (46 CITINGS)			

L66 ANSWER 16 OF 31 HCA COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 137:208313 HCA Full-text
 TITLE: Photoconductive imaging members
 INVENTOR(S): Liu, Ping; Hsiao, Cheng-kuo; Ong, Beng S.; Fuller, Timothy J.; Yuh, Huoy-jen; Cherniack, Helen R.; Silvestri, Markus R.

January 3, 2011

10/581,005

55

PATENT ASSIGNEE(S): Xerox Corporation, USA
SOURCE: U.S., 12 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6444386	B1	20020903	US 2001-834292	20010413 <--
PRIORITY APPLN. INFO.:			US 2001-834292	20010413 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 137:208313

AB A photoconductive imaging member contains (1) a supporting substrate, (2) a hole blocking layer, (3) a photogenerating layer, and (4) a charge transport layer. The hole blocking layer is generated from crosslinking an organosilane: SiRR₁R₂R₃ (R = alkyl, aryl, with the substituent being halide, alkoxy, aryloxy, amino; R₁-3 = alkyl, aryl, alkoxy, aryloxy, acyloxy, halide, cyano, and amino) in the presence of a hydroxy-functionalized polymer: (A)_x(B-D-OH)_y (A, B = resp. divalent and trivalent repeating units; D = divalent linkage; x, y = mole fractions of the repeating units of A and B, resp., and x = 0-0.99, y = 0.01-1, x+y = 1).

IT 26355-01-1P, 2-Hydroxyethyl methacrylate-methyl methacrylate copolymer

(hole blocking layer; photoconductive imaging members containing)

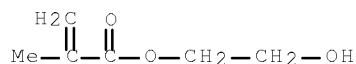
RN 26355-01-1 HCA

CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with methyl 2-methyl-2-propenoate (CA INDEX NAME)

CM 1

CRN 868-77-9

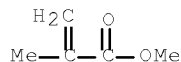
CMF C6 H10 O3



CM 2

CRN 80-62-6

CMF C5 H8 O2



INCL 430064000

IPCI G03G0005-14 [ICM, 7]

IPCR G03G0005-06 [I,C*]; G03G0005-06 [I,A]; G03G0005-14 [I,C*]; G03G0005-14 [I,A]

NCL 430/064.000

CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic and Other

Reprographic Processes)

Section cross-reference(s): 35, 38

IT 26355-01-1P, 2-Hydroxyethyl methacrylate-methyl methacrylate
copolymer

(hole blocking layer; photoconductive imaging
members containing)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Baczek	1981			US 4298697 A	HCA
Hoffend	1985			US 4560635 A	HCA
Hor	1985			US 4555463 A	HCA
Hor	1986			US 4587189 A	HCA
Keoshkerian	1996			US 5482811 A	HCA
Lu	1982			US 4338390 A	HCA
Melnyk	1990			US 4921773 A	HCA
Middleton	1964			US 3121006 A	HCA
Ong	2001			US 6287737 B1	HCA
Stolka	1981			US 4265990 A	HCA
Teuscher	1984			US 4464450 A	HCA
Yuh	1990			US 4921769 A	HCA

OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD
(8 CITINGS)

L66 ANSWER 17 OF 31 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 136:207054 HCA Full-text

TITLE: Hole blocking effect on the organic electroluminescent
device using europium complex

AUTHOR(S): Kim, Jun Ho; Lee, Sang Phil; Kim, Jung Soo; Kim, Young
Kwan; Lee, Seung Hee

CORPORATE SOURCE: Department of Electrical & Control Engineering,
Hong-Ik, University, Seoul, 121-791, S. Korea

SOURCE: Molecular Crystals and Liquid Crystals Science and
Technology, Section A: Molecular Crystals and Liquid
Crystals (2001), 371, 455-458
CODEN: MCLCE9; ISSN: 1058-725X

PUBLISHER: Gordon & Breach Science Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

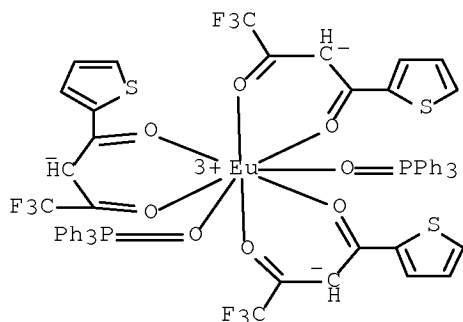
AB The Eu complex, Eu(TTA)3(TPPO) [tris-(4,4,4-trifluoro-1-(2-thienyl)-butane-
1,3-dionate)-triphenyl phosphine oxide europium(III)] is known as the sharp
red electroluminescent organic material at the wavelength of 615 nm, but its
luminance is quite low. In this study, the complex's elec. and optical
characteristics were improved using the hole blocking layer (HBL), BCP [2,9-
dimethyl-4,7-diphenyl-1,10-phenanthroline]. The device with a structure of
ITO/TPD/Eu(TTA)3(TPPO)/BCP/Alq3/Li:Al/Al was fabricated and its
photoluminescent and electroluminescent characteristics were investigated. It
was found that the BCP layer with a thickness of 6 nm can block the holes from
Eu complex efficiently to improve the EL characteristics of the device.
Details on the elec. properties of these structures are also discussed.

IT 12121-29-8

(hole blocking effect on organic electroluminescent
device using europium complex as emitter and bathocuproine as
hole-blocking layer)

RN 12121-29-8 HCA

CN Europium, tris[4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedionato-
κO1,κO3]bis(triphenylphosphine oxide-κO)- (CA INDEX
NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74, 76

IT 12121-29-8

(hole blocking effect on organic electroluminescent device using europium complex as emitter and bathocuproine as hole-blocking layer)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Kido, J	1994	65	2124	Appl Phys Lett	HCA
Kijima, Y	1988			Spring MRS	
Tsutsui, T	1994	65	1868	Appl Phys Lett	HCA

OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

L66 ANSWER 18 OF 31 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 135:233846 HCA Full-text

TITLE: Photoconductive hole blocking layer

INVENTOR(S): Ong, Beng S.; Liu, Ping; Hsiao, Cheng-kuo; Yuh, Huoy-jen; Chambers, John S.; Pai, Damodar M.; Silvestri, Markus R.; Carmichael, Kathleen M.

PATENT ASSIGNEE(S): Xerox Corporation, USA

SOURCE: U.S., 22 pp.
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6287737	B1	20010911	US 2000-579491	20000530 <--
JP 2002023404	A	20020123	JP 2001-152568	20010522 <--

PRIORITY APPLN. INFO.: US 2000-579491 A 20000530 <--

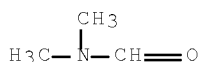
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 135:233846

AB The present invention encompasses xerog. imaging and printing, including digital. A photoconductive imaging member is comprised of a supporting substrate, a hole blocking layer thereover, a photogenerating layer and a charge transport layer. The hole blocking layer is comprised of a crosslinked polymer derived from silyl-functionalized hydroxyalkyl polymer -(A)a-(b(SiX₃))b-(D(E))c-(F(OH))d- (A, B, D, and F = segments of polymer backbone; E

= electron transporting moiety; X = halide, cyano, alkoxy, acyloxy, and aryloxy; a, b, c, and d = mole fractions of repeating monomer units, satisfying a+b+c+d = 1) reacted with an organosilane RSiR₁R₂R₃ (R= alkyl, alkyl, aryl; R₁-3 = alkyl, aryl, alkoxy, aryloxy, acyloxy, halogen, cyano, and amino) and water. The presence of a hydroxyl group enables the addition of water to the coating solution without substantially causing phase separation, and also accelerates the curing or crosslinking the hole blocking layer.

IT 68-12-2, N,N-Dimethylformamide, reactions
(electrophotog. photoconductive hole blocking layer
prepared from)
RN 68-12-2 HCA
CN Formamide, N,N-dimethyl- (CA INDEX NAME)



INCL 430058800
IPCI G03G0005-047 [ICM,7]; G03G0005-043 [ICM,7,C*]; G03G0005-14 [ICS,7]
IPCR C08F0008-00 [I,C*]; C08F0008-42 [I,A]; C08F0212-00 [I,C*]; C08F0212-02 [I,A]; C08F0220-00 [I,C*]; C08F0220-12 [I,A]; C08F0230-00 [I,C*]; C08F0230-08 [I,A]; G03G0005-043 [I,C*]; G03G0005-047 [I,A]; G03G0005-05 [I,C*]; G03G0005-05 [I,A]; G03G0005-14 [I,C*]; G03G0005-14 [I,A]
NCL 430/058.800; 430/058.650; 430/059.400; 430/064.000
CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38
IT 68-12-2, N,N-Dimethylformamide, reactions 1592-20-7,
4-Vinylbenzyl chloride 36232-49-2,
9-Dicyanomethylenefluorene-4-carboxylic acid
(electrophotog. photoconductive hole blocking layer
prepared from)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Burt	1996			US 5493016	HCA
Duff	1997			US 5645965	HCA
Keoshkerian	1996			US 5482811	HCA
Liu	1999			US 5874193	HCA
Mayo	1995			US 5473064	HCA
Ong	1999			US 5871877	HCA
Springett	2000			US 6030735	HCA
Stolka	1981			US 4265990	HCA

OS.CITING REF COUNT: 33 THERE ARE 33 CAPLUS RECORDS THAT CITE THIS RECORD (33 CITINGS)

L66 ANSWER 19 OF 31 HCA COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 135:11837 HCA Full-text
TITLE: An Efficient Pyridine- and Oxadiazole-Containing Hole-Blocking Material for Organic Light-Emitting Diodes: Synthesis, Crystal Structure, and Device Performance
AUTHOR(S): Wang, Changsheng; Jung, Gun-Young; Hua, Yulin; Pearson, Christopher; Bryce, Martin R.; Petty, Michael C.; Batsanov, Andrei S.; Goeta, Andres E.; Howard, Judith A. K.

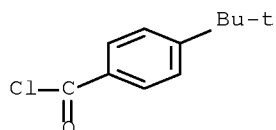
CORPORATE SOURCE: Department of Chemistry and School of Engineering,
University of Durham, Durham, DH1 3LE, UK
SOURCE: Chemistry of Materials (2001), 13(4),
1167-1173
CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The authors focus on the synthesis and structure of the new bis(1,3,4-oxadiazole) system 2,5-bis[2-(4-tert-butylphenyl)-1,3,4-oxadiazol-5-yl]pyridine (PDPyDP). The authors have fabricated light-emitting diodes (LEDs) using poly[2-methoxy-5-(2-ethylhexoxy)-1,4-phenylene vinylene] (MEH-PPV) as the emissive material, with and without a thermally evaporated electron-injection/hole-blocking layer of either PDPyDP or its vinylene analog (E)-1,2-bis[2-(4-tert-butylphenyl)-1,3,4-oxadiazol-5-yl]ethene (PDVDP) or its phenylene analog 1,4-bis[2-(4-tert-butylphenyl)-1,3,4-oxadiazol-5-yl]benzene (PDPDP). PDPDP is the para isomer of OXD-7, which is a widely used mol. electron-transporting material. Electroluminescence spectra indicate that light is emitted only from the MEH-PPV layer. Using Al as the cathode, the bilayer LED with PDPyDP is considerably more efficient than the corresponding single-layer device or devices with PDVDP or PDPDP as the electron-injection layer.

IT 1710-98-1, 4-tert-Butylbenzoyl chloride
(efficient pyridine- and oxadiazole-containing hole-blocking material for organic light-emitting diodes: synthesis, crystal structure, and device performance)

RN 1710-98-1 HCA

CN Benzoyl chloride, 4-(1,1-dimethylethyl)- (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 28, 75, 76

IT 1710-98-1, 4-tert-Butylbenzoyl chloride 6011-55-8,
Pyridine-2,5-dicarboxylic acid dihydrazide 7803-57-8, Hydrazine hydrate
(efficient pyridine- and oxadiazole-containing hole-blocking material for organic light-emitting diodes: synthesis, crystal structure, and device performance)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Adachi, C	1989	55	1489	Appl Phys Lett	HCA
Allen, F	1993	8	1	Chem Des Autom News	
Antolini, L	1998	10	382	Adv Mater	HCA
Brown, A	1992	61	2793	Appl Phys Lett	HCA
Bruker Analytical X-Ray	1997			SMART and SAINT, Are	
Burroughes, J	1990	347	539	Nature	HCA
Chen, J	1987	8	325	Gaodeng Xuexiao Huax	HCA
Chondroudís, K	1999	11	3028	Chem Mater	HCA
Dailey, S	1998	10	5171	J Phys:Condens Mater	HCA

Dailey, S	1999	102	945	Synth Met	HCA
Fichou, D	2000	10	571	J Mater Chem	HCA
Garrett, S	1902	81	454	J Chem Soc	
Horowitz, G	1998	10	365	Adv Mater	HCA
Iwakura, Y	1967	108	160	Makromol Chem	HCA
Jung, G				J Appl Phys, to be s	
Jung, G	2001		307	Organic Light-Emitti	HCA
Kilitziraki, M	1998	335	209	Thin Solid Films	HCA
Kim, D	1996	280	325	Mol Cryst Liq Cryst	HCA
Kim, H	1998	4	324	J Ind Eng Chem (Seou	HCA
Kim, H	1999	7	18	Korea Polym J	HCA
Kim, J	1999	9	2171	J Mater Chem	HCA
Kraft, A	1998	37	402	Angew Chem, Int Ed E	
Kuznetsov, V	1996	3	460	Funct Mater	
Meyer, H	1913	34	525	Monatsh Chem	
Mitschke, U	1998	4	2211	Chem Eur J	HCA
Mitschke, U	2000	10	1471	J Mater Chem	HCA
O'Brien, D	1997	82	2662	J Appl Phys	HCA
O'Brien, D	1998	9	173	Opt Mater (Amsterdam	HCA
Pan, J	1988	9	41	Gaodeng Xuexiao Huax	HCA
Perrin, D	1980			Purification of Labo	
Segura, J	1998	49	319	Acta Polym	HCA
Sheldrick, G	1997			SHELXTL/NT, version	
Shinohara, H	1958	15	839	Kobunshi Kagaku	HCA
Siegrist, T	1998	10	379	Adv Mater	HCA
Tang, C	1987	51	913	Appl Phys Lett	HCA
Thelakkat, M	1998	9	429	Polym Adv Technol	HCA
Tian, J	1995	7	2190	Chem Mater	HCA
Wang, C	2000	12	217	Adv Mater	HCA

OS.CITING REF COUNT: 70 THERE ARE 70 CAPLUS RECORDS THAT CITE THIS RECORD (71 CITINGS)

L66 ANSWER 20 OF 31 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 135:6245 HCA Full-text

TITLE: Light-Emitting Devices Based on a Poly(p-phenylenevinylene) Statistical Copolymer with Oligo(ethylene oxide) Side Groups

AUTHOR(S): Morgado, J.; Cacialli, F.; Friend, R. H.; Chuah, B. S.; Rost, H.; Holmes, A. B.

CORPORATE SOURCE: Departamento de Engenharia Quimica, Instituto Superior Tecnico, Lisbon, P-1049-001, Port.

SOURCE: Macromolecules (2001), 34(9), 3094-3099
CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The photoluminescence and electroluminescence were studied of the statistical copolymer poly[2,5-bis(dimethyloctylsilyl)-1,4-phenylenevinylene-2,5-bis(triethoxymethoxy)-1,4-phenylenevinylene], BDMOS-co-BTEM-PPV. The BDMOS-co-BTEM-PPV copolymer is designed to combine the high luminescence efficiency of BDMOS-PPV with the ion-coordinating ability of BTEM-PPV. The photoluminescence efficiency increased to about 17% from 8.8% for BTEM-PPV. In single-layer light-emitting diode test structures with calcium (aluminum) cathode the luminance was up to 1300 (10) cd/m² with an efficiency of ≈ 0.5 (0.01) cd/A. The ITO/BDMOS-co-BTEM-PPV:LiTf (8%)/Al device structures display behavior typical of light-emitting electrochem. cells, LECs, with efficiency up to 0.03 cd/A. The statistical copolymer contributes to the photoluminescence efficiency and provides sufficient ion coordination for LEC applications.

IT 9011-14-7, Poly(methyl methacrylate)

(hole-blocking/electron transport layer; preparation and luminescence and ion coordinating efficiency of poly(bis(dimethyloctylsilyl)-bis(triethoxymethoxy)-p-phenylenevinylene) for LEDs)

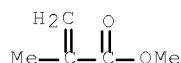
RN 9011-14-7 HCA

CN 2-Propenoic acid, 2-methyl-, methyl ester, homopolymer (CA INDEX NAME)

CM 1

CRN 80-62-6

CMF C5 H8 O2



CC 37-5 (Plastics Manufacture and Processing)

Section cross-reference(s): 73

IT 852-38-0, PBD 9011-14-7, Poly(methyl methacrylate)

(hole-blocking/electron transport layer; preparation and luminescence and ion coordinating efficiency of poly(bis(dimethyloctylsilyl)-bis(triethoxymethoxy)-p-phenylenevinylene) for LEDs)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Blom, P	1996	68	3308	Appl Phys Lett	HCA
Bredas, J	1994	217	507	Chem Phys Lett	HCA
Brown, A	1992	61	2793	Appl Phys Lett	HCA
Burroughes, J	1990	347	539	Nature	HCA
Chu, H	1999	101	216	Synth Met	HCA
Chuah, B	1997	91	279	Synth Met	HCA
Demello, J	1997	9	230	Adv Mater	HCA
Demello, J	1998	57	12951	Phys Rev B	HCA
Demello, J	2000	85	421	Phys Rev Lett	HCA
Friend, R	1999	397	121	Nature	HCA
Greenham, N	1994	6	491	Adv Mater	HCA
Halls, J	1999	60	5721	Phys Rev B	HCA
Helbig, M	1993	194	1607	Makromol Chem	HCA
Holzer, L	1999	102	1022	Synth Met	HCA
Holzer, L	1999	100	71	Synth Met	HCA
Hwang, D	1997	125	111	Macromol Symp	
Janietz, S	1998	73	2453	Appl Phys Lett	HCA
Kim, J	1998	84	6859	J Appl Phys	HCA
Kim, S	1996	8	979	Adv Mater	HCA
Kraft, A	1998	37	402	Angew Chem, Int Ed E	
Lebedev, E	1997	71	2686	Appl Phys Lett	HCA
Morgado, J	1999	85	1784	J Appl Phys	HCA
Morgado, J	1999	86	6392	J Appl Phys	HCA
Pei, Q	1996	118	3922	J Am Chem Soc	HCA
Pei, Q	1996	118	7416	J Am Chem Soc	HCA
Pei, Q	1995	269	1086	Science	HCA
Pommerehne, J	1995	7	5517	Adv Mater	
Rost, H	1999	102	937	Synth Met	HCA
Wu, P	1995	267	441	Mol Cryst Liq Cryst	
Yu, G	1996	259	465	Chem Phys Lett	HCA

OS.CITING REF COUNT: 38 THERE ARE 38 CAPLUS RECORDS THAT CITE THIS

RECORD (38 CITINGS)

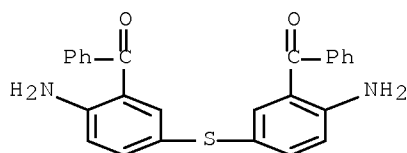
L66 ANSWER 21 OF 31 HCA COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 133:193562 HCA Full-text
TITLE: New polyquinoline copolymers: synthesis, optical,
luminescent, and hole-blocking/electron-transporting
properties
AUTHOR(S): Kim, Jong Lae; Kim, Jai Kyeong; Cho, Hyun Nam; Kim,
Dong Young; Kim, Chung Yup; Hong, Sung Il
CORPORATE SOURCE: Department of Fiber Polymer Science, Seoul National
University, Seoul, 151-742, S. Korea
SOURCE: Macromolecules (2000), 33(16), 5880-5885
CODEN: MAMOBX; ISSN: 0024-9297
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A series of polyquinolines containing the 9,9-dihexylfluorene unit in the main
chain were synthesized via Friedlaender quinoline synthesis in good yields.
The thermal, optical, luminescent, electrochem., and hole-blocking/electron-
transporting properties of these polyquinolines were examined. The glass
transition temps. were in the range 195-243°C, and these polyquinolines had
initial decomposition temps. of >388°C. Their optical and luminescent
properties varied with the chain rigidity and conjugation length. Cyclic
voltammetry studies reveal that these polyquinolines undergo irreversible
oxidation onset around -6.0 eV, and their LUMO level ranged from -2.78 to -
3.21 eV. The application of two of these polyquinolines as a hole-
blocking/electron-transporting layer in polymeric LEDs was demonstrated.

IT 106500-65-6P, 4,4'-Diamino-3,3'-dibenzoyldiphenyl sulfide
(monomer; preparation and optical, luminescent and hole-
blocking/electron-transporting properties of)

RN 106500-65-6 HCA

CN Methanone, [thiobis(6-amino-3,1-phenylene)]bis[phenyl- (9CI) (CA INDEX
NAME)



IT 222416-60-6 222416-62-8
(optical, luminescent and hole-blocking
/electron-transporting properties of)

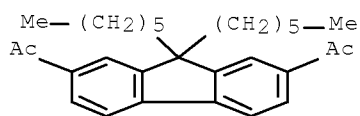
RN 222416-60-6 HCA

CN Ethanone, 1,1'-(9,9-dihexyl-9H-fluorene-2,7-diyl)bis-, polymer with
[oxybis(6-amino-3,1-phenylene)]bis[phenylmethanone] (9CI) (CA INDEX NAME)

CM 1

CRN 222416-59-3

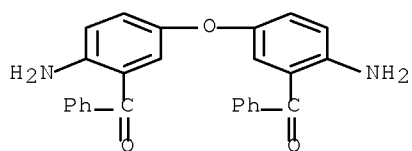
CMF C29 H38 O2



CM 2

CRN 59827-14-4

CMF C26 H20 N2 O3



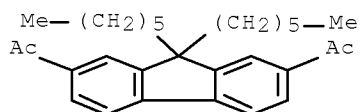
RN 222416-62-8 HCA

CN Ethanone, 1,1'-(9,9-dihexyl-9H-fluorene-2,7-diyl)bis-, polymer with
(4,4'-diamino[1,1'-biphenyl]-3,3'-diyl)bis[phenylmethanone] (9CI) (CA
INDEX NAME)

CM 1

CRN 222416-59-3

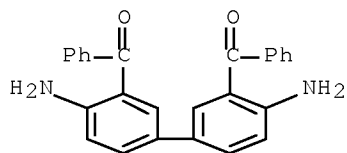
CMF C29 H38 O2



CM 2

CRN 71713-10-5

CMF C26 H20 N2 O2



IT 289471-87-0P 289471-89-2P,
2,7-Diacetyl-9,9-dihexylfluorene-4,4'-Diamino-3,3'-dibenzoylstilbene
copolymer

(preparation and optical, luminescent and hole-blocking
/electron-transporting properties of)

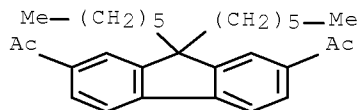
RN 289471-87-0 HCA

CN Ethanone, 1,1'-(9,9-dihexyl-9H-fluorene-2,7-diyl)bis-, polymer with
[thiobis(6-amino-3,1-phenylene)]bis[phenylmethanone] (9CI) (CA INDEX
NAME)

CM 1

CRN 222416-59-3

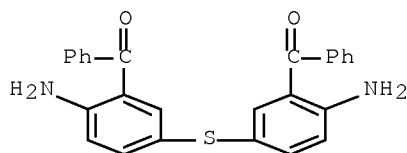
CMF C29 H38 O2



CM 2

CRN 106500-65-6

CMF C26 H20 N2 O2 S



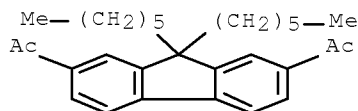
RN 289471-89-2 HCA

CN Ethanone, 1,1'-(9,9-dihexyl-9H-fluorene-2,7-diyl)bis-, polymer with
[1,2-ethenediylbis(6-amino-3,1-phenylene)]bis[phenylmethanone] (9CI) (CA
INDEX NAME)

CM 1

CRN 222416-59-3

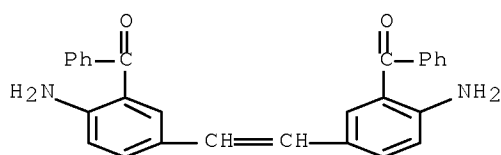
CMF C29 H38 O2



CM 2

CRN 94751-92-5

CMF C28 H22 N2 O2



CC 35-5 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 36, 72, 73, 76

IT 106500-65-6P, 4,4'-Diamino-3,3'-dibenzoyldiphenyl sulfide
 (monomer; preparation and optical, luminescent and hole-
 blocking/electron-transporting properties of)

IT 222416-60-6 222416-61-7 222416-62-8 222416-63-9
 (optical, luminescent and hole-blocking
 /electron-transporting properties of)

IT 289471-87-0P 289471-88-1P,
 2,7-Diacetyl-9,9-dihexylfluorene-4,4'-Diamino-3,3'-dibenzoyldiphenyl
 sulfide copolymer, SRU 289471-89-2P,
 2,7-Diacetyl-9,9-dihexylfluorene-4,4'-Diamino-3,3'-dibenzoylstilbene
 copolymer 289471-90-5P, 2,7-Diacetyl-9,9-dihexylfluorene-4,4'-Diamino-
 3,3'-dibenzoylstilbene copolymer, SRU
 (preparation and optical, luminescent and hole-blocking
 /electron-transporting properties of)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Abkowitz, M	1992	83	937	Solid State Commun	HCA
Agrawal, A	1992	96	2837	J Phys Chem	HCA
Agrawal, A	1993	26	895	Macromolecules	HCA
Burn, P	1993	115	10117	J Am Chem Soc	HCA
Burrough, J	1990	347	539	Nature	
Cao, Y	1999	397	414	Nature	HCA
Cho, H	1999	32	1476	Macromolecules	HCA
Fukuda, M	1990	31	2465	J Polym Sci, Polym C	
Janietz, S	1997	9	403	Adv Mater	HCA
Jenekhe, S	1997	9	409	Chem Mater	HCA
Jenekhe, S	1994	265	765	Science	HCA
Kim, D	1997	3418	151	Proc SPIE Int Soc Op	
Kim, J	1999	32	2065	Macromolecules	HCA
Kim, K	1992	46	1	J Appl Polym Sci	HCA
Norris, S	1976	9	496	Macromolecules	HCA
Ohmori, Y	1991	30	L1941	Jpn J Appl Phys	
Osaheni, J	1994	27	739	Macromolecules	HCA
Parker, I	1994	65	1272	Appl Phys Lett	HCA
Pei, Q	1996	118	7416	J Am Chem Soc	HCA
Pelter, M	1990	23	2418	Macromolecules	HCA
Pichler, K	1997	355	829	Philos Trans R Soc L	HCA
Pommerehne, J	1995	7	551	Adv Mater	HCA
Stille, J	1981	14	870	Macromolecules	HCA
Strukelj, M	1995	267	1969	Science	HCA
Sybert, P	1981	14	493	Macromolecules	HCA
Tani, H	1963	36	391	Bull Chem Soc Jpn	
Tunney, S	1987	20	258	Macromolecules	HCA
Vancraeynest, W	1980	13	1361	Macromolecules	HCA
Yu, W	1998	120	11808	J Am Chem Soc	HCA
Zhang, C	1994	62	35	Synth Met	HCA
Zhang, X	1999	32	7422	Macromolecules	HCA

January 3, 2011

10/581,005

66

Zimmermann, E |1985 |18 |321 |Macromolecules |HCA
 OS.CITING REF COUNT: 74 THERE ARE 74 CAPLUS RECORDS THAT CITE THIS
 RECORD (74 CITINGS)

L66 ANSWER 22 OF 31 HCA COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 133:24680 HCA Full-text
 TITLE: Photoconductive imaging member
 INVENTOR(S): Jennings, Carol A.; Murti, Dasarao K.; Smith, Paul F.;
 McAneney, Gwynne E.; Hor, Ah-Mee; Gardner, Sandra J.;
 Ong, Beng S.
 PATENT ASSIGNEE(S): Xerox Corp., USA
 SOURCE: U.S., 12 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6074791	A	20000613	US 1999-258379	19990226 <--
PRIORITY APPLN. INFO.:			US 1999-258379	19990226 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 133:24680

AB A photoconductive imaging member comprises a supporting substrate, a hole-blocking layer, a photogenerating layer, and a charge-transporting layer, wherein the hole-blocking layer comprises a metal oxide prepared by a sol-gel process.

IT 9003-22-9, Vinyl acetate-vinyl chloride copolymer
 24937-78-8, Ethylene-vinyl acetate copolymer
 (electrophotog. photoreceptors with hole-blocking
 layers containing metal oxides and)

RN 9003-22-9 HCA

CN Acetic acid ethenyl ester, polymer with chloroethene (CA INDEX NAME)

CM 1

CRN 108-05-4

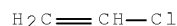
CMF C4 H6 O2



CM 2

CRN 75-01-4

CMF C2 H3 Cl



RN 24937-78-8 HCA

CN Acetic acid ethenyl ester, polymer with ethene (CA INDEX NAME)

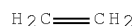
CM 1

CRN 108-05-4
CMF C4 H6 O2



CM 2

CRN 74-85-1
CMF C2 H4



INCL 430058800
IPCI G03G0005-10 [ICM,7]
IPCR G03G0005-06 [I,C*]; G03G0005-06 [I,A]; G03G0005-14 [I,C*]; G03G0005-14 [I,A]
NCL 430/058.800; 430/059.400; 430/065.000
CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT 9002-85-1, Poly(vinylidene chloride) 9002-89-5, Poly(vinyl alcohol) 9003-01-4, Poly(acrylic acid) 9003-22-9, Vinyl acetate-vinyl chloride copolymer 9003-39-8, Poly(vinylpyrrolidone) 9003-47-8, Poly(vinylpyridine) 9004-57-3, Ethylcellulose 9004-64-2, Hydroxypropylcellulose 9004-67-5, Methylcellulose 9005-25-8, Starch, uses 24937-78-8, Ethylene-vinyl acetate copolymer 25322-68-3, Poly(ethylene oxide) 25322-69-4, Poly(propylene oxide) (electrophotog. photoreceptors with hole-blocking layers containing metal oxides and)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Arnal, P	1997	9	694	Chem Mater	HCA
Ashiya	1996			US 5582948	HCA
Badesha	1992			US 5116703	HCA
Barbe, C	1997	80	3157	J Am Ceram Soc	HCA
Brinker, C	1990		21	Sol-Gel Science, Cha	
Burt	1996			US 5493016	HCA
Burt	1996			US 5521306	HCA
Duff	1997			US 5645965	HCA
Flory, P	1974	57	7	Chem Society	HCA
Hongo	1994			US 5286591	HCA
Hor	1986			US 4587189	HCA
Katayama	1996			US 5489496	HCA
Keoshkerian	1996			US 5482811	HCA
Livage, J	1990	73	717	Mat Res Soc Symp Pro	
Lu	1982			US 4338390	HCA
Mayo	1995			US 5473064	HCA
O'Regan, B	1990	94	8720	J Phys Chem	HCA
Yu	1991			US 5013624	

OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD
(5 CITINGS)

L66 ANSWER 23 OF 31 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 129:101428 HCA Full-text

ORIGINAL REFERENCE NO.: 129:20745a,20748a

TITLE: Concentration effects on charge transport in dye doped polymer light emitting diodes

AUTHOR(S): Nunzi, J. -M.; Gautier-Thianche, E.; Lorin, A.; Denis, C.; Raimond, P.; Sentein, C.

CORPORATE SOURCE: LETI (CEA-Technologies Avancees), DEIN, Service de Physique Electronique, Groupe Composants Organiques, CEA / Saclay, Gif sur Yvette, 91191, Fr.

SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1998), 3281(Polymer Photonic Devices), 302-309

CODEN: PSISDG; ISSN: 0277-786X

PUBLISHER: SPIE-The International Society for Optical Engineering

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Light emitting diodes made of a single spin-coated layer of poly(9-vinylcarbazole) doped with coumarin-515 dye were studied. The influence of dye concentration on emission and elec. characteristics is evidenced. Two different regimes are identified. At low concns., apparent hole injection barrier raises, holes are trapped and mobility decreases. External quantum efficiency increases with concentration. At concns. larger than 10 %wt, coumarin aggregates, photoluminescence yield drops and electroluminescence yield increases up to 0.1 %-photons per electron. We show that using coumarin dye in a single-layer diode improves electron-hole injection and recombination balance more than using an addnl. hole-blocking layer.

IT 206364-60-5

(hole blocking layer in poly(9-vinylcarbazole) blue electroluminescent device)

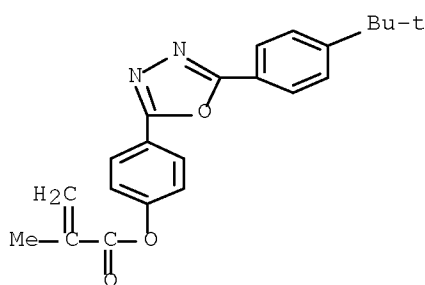
RN 206364-60-5 HCA

CN 2-Propenoic acid, 2-methyl-, 4-[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl]phenyl ester, homopolymer (CA INDEX NAME)

CM 1

CRN 206364-59-2

CMF C22 H22 N2 O3



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 38, 76

IT 206364-60-5

(hole blocking layer in poly(9-vinylcarbazole) blue electroluminescent device)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
=====	+	+	+	+	+
Adachi, C	1990	56	799	Appl Phys Lett	HCA
Gautier, E	1996	69	1071	Appl Phys Lett	HCA
Gautier, E	1996	81	197	Synth Met	HCA
Gill, W	1976		63	Photoconductivity an	
Kido, J	1994	64	815	Appl Phys Lett	HCA
Kido, J	1995	67	2281	Appl Phys Lett	HCA
Nishino, H	1995	68	243	Synth Met	HCA
Pai, D	1970	52	2285	J Chem Phys	HCA
Schlatmann, A	1996	69	1764	Appl Phys Lett	HCA
Strukelj, M	1995	267	1969	Science	HCA
Tokuhisa, H	1995	66	3433	Appl Phys Lett	HCA
van Slyke, S	1996	69	2160	Appl Phys Lett	HCA
Vestweber, H	1994	64	141	Synth Met	HCA
Weissmantel, C	1981		361	Grundlagen der Festk	
Wu, C	1997	44	1269	IEEE Trans Electr De	HCA
Zhang, C	1995	72	185	Synth Met	HCA

L66 ANSWER 24 OF 31 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 128:3895 HCA Full-text

ORIGINAL REFERENCE NO.: 128:847a,850a

TITLE: Synthesis and Characterization of Aromatic Poly(1,3,5-triazine-ether)s for Electroluminescent Devices

AUTHOR(S): Fink, Ralf; Frenz, Carsten; Thelakkat, Mukundan; Schmidt, Hans-Werner

CORPORATE SOURCE: Makromolekulare Chemie I and Bayreuther Institut fuer Makromolekulforschung (BIMF), Universitaet Bayreuth, Bayreuth, 95440, Germany

SOURCE: Macromolecules (1997), 30(26), 8177-8181

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

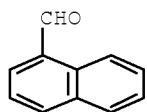
LANGUAGE: English

AB Various difluoro functionalized aromatic 1,3,5-triazine monomers were prepared. A series of poly(1,3,5-triazine-ether)s was synthesized by polycondensation with 4,4'-hexafluoroisopropylidenebis[phenol]. The polymers have excellent thermal stability and are amorphous with glass transition temps. in the range 190-250°. In order to examine the potential application these polymers may possess for use in organic electroluminescent devices, the redox properties were studied by cyclic voltammetry. The monomers have high electron affinities and reach LUMO values in the range of -2.7 to -3.1 eV. This opens the possibility to utilize 1,3,5-triazine-containing materials as electron injecting/hole blocking layers in light emitting devices (LEDs). Initial LED results are in accordance with these high electron affinities.

IT ~~66-77-3~~, 1-Naphthaldehyde ~~455-19-6~~,
4-(Trifluoromethyl)benzaldehyde ~~872-85-5~~,
4-Pyridinecarboxaldehyde ~~4363-93-3~~, 4-Formylquinoline
(reactant; in synthesis of difluoro aromatic triazine monomers for
preparation
of polymers as hole blocking/electron transport
layers for use in multilayer light emitting devices)

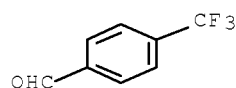
RN ~~66-77-3~~ HCA

CN 1-Naphthalenecarboxaldehyde (CA INDEX NAME)



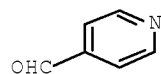
RN 455-19-6 HCA

CN Benzaldehyde, 4-(trifluoromethyl)- (CA INDEX NAME)



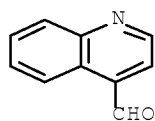
RN 872-85-5 HCA

CN 4-Pyridinecarboxaldehyde (CA INDEX NAME)



RN 4363-93-3 HCA

CN 4-Quinolinecarboxaldehyde (CA INDEX NAME)

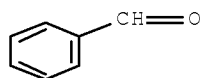


IT 100-52-7, Benzaldehyde, reactions

(reactant; in synthesis of difluoro aromatic triazine monomers for
synthesis of polymers as hole blocking/electron
transport layers for use in multilayer light emitting devices)

RN 100-52-7 HCA

CN Benzaldehyde (CA INDEX NAME)



CC 35-2 (Chemistry of Synthetic High Polymers)

IT 62-53-3, Benzenamine, reactions 64-17-5, Ethanol, reactions

66-77-3, 1-Naphthaldehyde 455-19-6,

4-(Trifluoromethyl)benzaldehyde 872-85-5,

4-Pyridinecarboxaldehyde 1194-02-1, 4-Fluorobenzonitrile

4363-93-3, 4-Formylquinoline

(reactant; in synthesis of difluoro aromatic triazine monomers for preparation

of polymers as hole blocking/electron transport layers for use in multilayer light emitting devices)

IT 100-52-7, Benzaldehyde, reactions

(reactant; in synthesis of difluoro aromatic triazine monomers for synthesis of polymers as hole blocking/electron transport layers for use in multilayer light emitting devices)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Adachi, C	1990	57	531	Appl Phys Lett	HCA
Bard, A	1980		634	Electrochemical Meth	
Bettenhausen, J	1996	8	507	Adv Mater	HCA
Borovik, V	1991	4	96	Sib Khim Zh	
Brown, A	1992	61	2793	Appl Phys Lett	HCA
Buchwald, E	1995	7	839	Adv Mater 7	HCA
Burroughes, J	1990	347	539	Nature (London)	HCA
Gmeiner, J	1993	44	201	Acta Polym	HCA
Kido, J	1993	32	L917	Jpn J Appl Phys	HCA
Koepp, H	1960	64	483	Z Electrochem	HCA
Moratti, S	1995	71	2117	Synth Met	HCA
Perrin, D	1988			Purification of Labo	
Pommerehne, J	1995	7	551	Adv Mater	HCA
Rosbach, V	1992			Handbook of Polymer	
Shirota, Y	1994	65	807	Appl Phys Lett	HCA
Solomon, D	1972			Step-Growth Polymeri	
Strukelj, M	1995	117	11976	J Am Chem Soc	HCA
Strukelj, M	1995		267	Science	
Tang, C	1987	51	913	Appl Phys Lett	HCA
Von Seggern, H	1994		2023	Macromol Chem Phys	HCA
Yamamoto, T	1996	118	3939	J Am Chem Soc	
Yang, Y	1995	77	694	J Appl Phys	HCA

OS.CITING REF COUNT: 66 THERE ARE 66 CAPLUS RECORDS THAT CITE THIS RECORD (67 CITINGS)

L66 ANSWER 25 OF 31 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 127:323987 HCA Full-text

ORIGINAL REFERENCE NO.: 127:63427a,63430a

TITLE: Multilayer light emitting diodes based on columnar discotics

AUTHOR(S): Stapff, Inga H.; Stumpflen, Volker; Wendorff, Joachim H.; Spohn, Daniela B.; Mobius, Dietmar

CORPORATE SOURCE: Fachbereich Physikalische Chemie und Wissenschaftliches Zentrum fiir Materialwissenschaften, Philipps-Universitat Marburg, Margurg, D-35032, Germany

SOURCE: Liquid Crystals (1997), 23(4), 613-617
CODEN: LICRE6; ISSN: 0267-8292

PUBLISHER: Taylor & Francis

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Columnar discotics were used as the hole transporting layer in single layer, two layer and three layer light emitting diodes because of the unusually large hole mobility of such materials. The observations are that the onset fields are small compared with most devices using non-discotic hole transporting layers, that these values are strongly reduced with increasing number of layers, that the orientation of the columns along the layer film normal causes

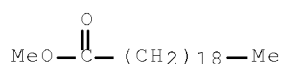
a further decrease of the onset voltage and finally that the quantum efficiencies increase significantly as the number of layers is increased.

IT 1120-28-1, Arachidic acid methyl ester

(hole blocking layer; light emitting diode containing columnar discotic hole transport layer and)

RN 1120-28-1 HCA

CN Eicosanoic acid, methyl ester (CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 75, 76

IT 1120-28-1, Arachidic acid methyl ester 197786-11-1

(hole blocking layer; light emitting diode containing columnar discotic hole transport layer and)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Adachi, C	1989	55	1489	Appl Phys Lett	HCA
Adachi, C	1988	27	713	Jpn J appl Phys	
Adam, D	1994	7	276	Adv Mater	
Adam, D	1994	371	141	Nature	HCA
Adam, D	1993	70	457	Phys Rev Lett	HCA
Blodgett, K	1935	57	1007	J Am chem Soc	HCA
Braun, D	1991	58	1982	Appl Phys Lett	HCA
Burroughes, J	1990	347	539	Nature	HCA
Christ, T	1997	9	48	Adv Mater	HCA
Christ, T	1997	18	93	Macromol rap Com	HCA
Christ, T	1997			Thin Solid Films in	
Era, M	1991	78	488	Chem Phys Lett	
Gailberger, M	1991	44	8643	Phys Rev B	HCA
Hosokawa, C	1992	61	2503	Appl Phys Lett	HCA
Kido, J	1992	61	761	Appl Phys Lett	HCA
Langmuir, J	1939	170	15	Proc r Soc London, S	
Pommerehne, J	1996	7	551	Adv Mater	
Sander, R	1996	29	7705	Macromolecules	HCA
Simmerer, J	1996	8	815	Adv Mater	HCA
Tang, C	1987	51	913	Appl Phys Lett	HCA
Tokushisa, H	1996		62	Myazaki Int Symp, Ko	
Vestweber, H	1992	4	661	Adv Mater	HCA
Vestweber, H	1994	64	141	Synth Met	HCA
Wu, A	1994		2319	Chem Lett	HCA
OS.CITING REF COUNT:	78	THERE ARE 78 CAPLUS RECORDS THAT CITE THIS RECORD (78 CITINGS)			

L66 ANSWER 26 OF 31 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 126:284923 HCA Full-text

ORIGINAL REFERENCE NO.: 126:55035a,55038a

TITLE: Photoluminescence and electroluminescence of the blue emission of devices based on poly(p-Phenylenevinylene) copolymers

AUTHOR(S): Ma, Dong-ge; Hong, Zhi-yong; Zhao, Xiao-jiang; Jing, Xia-bin; Wang, Fo-song; Shi, Jia-wei; Liu, Ming-da; Jin, En-shun; Li, Shu-wen

CORPORATE SOURCE: Changchun Inst. of Applied Chem., Chinese Academy of Sciences, Changchun, 130022, Peop. Rep. China
SOURCE: Chinese Physics Letters (1996), 13(12), 940-943
CODEN: CPLEEU; ISSN: 0256-307X
PUBLISHER: Chinese Physical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Bright blue polymer light-emitting diodes have been fabricated by using the poly(p-phenylenevinylene)-based copolymers with 10 C long aliphatic chains as the electroluminescent layers, PBD in PMMA and 8-hydroxyquinone aluminum (Alq3) as the electron-transporting layers, and aluminum as the cathode. The multilayer structure devices show 190 cd/m2 light-emitting brightness at 460 nm, 15 V turn-on voltage. It is found that the intensities of photoluminescence and electroluminescence (EL) increase with increasing aliphatic chain length, the EL intensity and operation stability of these polymer light-emitting diodes can be improved by reasonable design of the structure.

IT 9011-14-7, PMMA
(hole-blocking layer; photoluminescence and electroluminescence of blue emission of devices based on poly(p-Phenylenevinylene) copolymers)

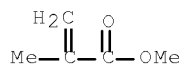
RN 9011-14-7 HCA

CN 2-Propenoic acid, 2-methyl-, methyl ester, homopolymer (CA INDEX NAME)

CM 1

CRN 80-62-6

CMF C5 H8 O2



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 38

IT 9011-14-7, PMMA
(hole-blocking layer; photoluminescence and electroluminescence of blue emission of devices based on poly(p-Phenylenevinylene) copolymers)

OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

L66 ANSWER 27 OF 31 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 126:278090 HCA Full-text

ORIGINAL REFERENCE NO.: 126:53919a, 53922a

TITLE: New CF3-substituted PPV-type oligomers and polymers for use as hole blocking layers in LEDs

AUTHOR(S): Lux, A.; Holmes, A. B.; Cervini, R.; Davies, J. E.; Moratti, S. C.; Gruener, J.; Cacialli, F.; Friend, R. H.

CORPORATE SOURCE: Department of Chemistry, University Chemical Laboratory, University of Cambridge, Cambridge, CB2 1EW, UK

SOURCE: Synthetic Metals (1997), 84(1-3), 293-294

CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB New CF₃-substituted poly(p-phenylenevinylene) derivs. were synthesized by Wittig-Horner polycondensation. To obtain a better understanding of the relationship between absorption and luminescence properties and structure a single crystal x-ray anal. of a model oligomer was performed. The effect of electron withdrawing trifluoromethyl groups at vinylidene linkages in PPVs on absorption, luminescence, hole blocking and electron injecting properties was investigated.

IT 188997-75-3P 188997-78-6P

(preparation and properties of trifluoromethyl-substituted poly(p-phenylenevinylene) derivs. synthesized by Wittig-Horner polycondensation for use as hole blocking layers in light emitting diodes)

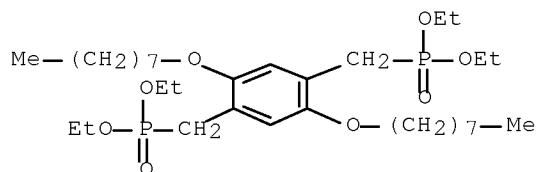
RN 188997-75-3 HCA

CN Phosphonic acid, [[2,5-bis(octyloxy)-1,4-phenylene]bis(methylene)]bis-, tetraethyl ester, polymer with 1,1'-(1,4-phenylene)bis[2,2,2-trifluoroethanone] (9CI) (CA INDEX NAME)

CM 1

CRN 176856-31-8

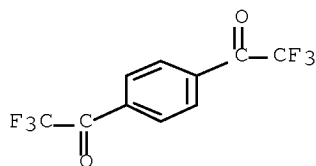
CMF C32 H60 O8 P2



CM 2

CRN 86988-48-9

CMF C10 H4 F6 O2



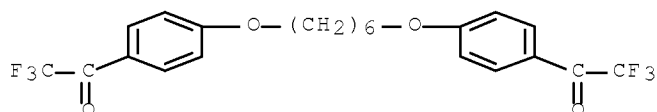
RN 188997-78-6 HCA

CN Phosphonic acid, [[2,5-bis(octyloxy)-1,4-phenylene]bis(methylene)]bis-, tetraethyl ester, polymer with 1,1'-[1,6-hexanediylbis(oxy-4,1-phenylene)]bis[2,2,2-trifluoroethanone] (9CI) (CA INDEX NAME)

CM 1

CRN 188997-77-5

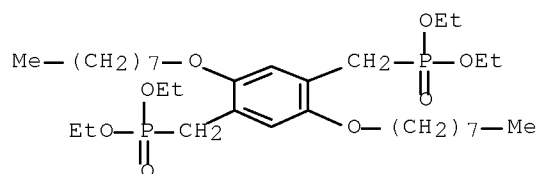
CMF C22 H20 F6 O4



CM 2

CRN 176856-31-8

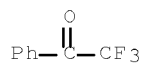
CMF C32 H60 08 P2



IT 434-45-7 4546-04-7, p-Xylylenebis(diethyl phosphonate)
(reactant; preparation and properties of trifluoromethyl-substituted
poly(p-phenylenevinylene) derivs. synthesized by Wittig-Horner
polycondensation for use as hole blocking layers in
light emitting diodes)

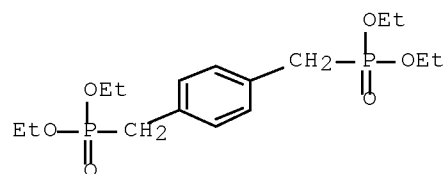
RN 434-45-7 HCA

CN	Ethanone, 2,2,2-trifluoro-1-phenyl-	(CA INDEX NAME)
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RN 4546-04-7 HCA

CN Phosphonic acid, P,P'-[1,4-phenylenebis(methylene)]bis-,
P,P,P',P'-tetraethyl ester (CA INDEX NAME)



CC 37-3 (Plastics Manufacture and Processing)

IT 188997-75-3P 188997-76-4P 188997-78-6P 188997-79-7P
(preparation and properties of trifluoromethyl-substituted
poly(p-phenylenevinylene) derivs. synthesized by Wittig-Horner
polycondensation for use as hole blocking layers in
light emitting diodes)

IT 434-45-7 4546-04-7, p-Xylylenebis(diethyl phosphonate)
 (reactant; preparation and properties of trifluoromethyl-substituted
 poly(p-phenylenevinylene) derivs. synthesized by Wittig-Horner
 polycondensation for use as hole blocking layers in
 light emitting diodes)

OS.CITING REF COUNT: 52 THERE ARE 52 CAPLUS RECORDS THAT CITE THIS
 RECORD (52 CITINGS)

L66 ANSWER 28 OF 31 HCA COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 122:147285 HCA Full-text
 ORIGINAL REFERENCE NO.: 122:27075a,27078a
 TITLE: Structurally simplified electrophotographic imaging
 member
 INVENTOR(S): Yu, Robert C. U.
 PATENT ASSIGNEE(S): Xerox Corp., USA
 SOURCE: U.S., 14 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5378566	A	19950103	US 1992-970459	19921102 <--
PRIORITY APPLN. INFO.:			US 1992-970459	19921102 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

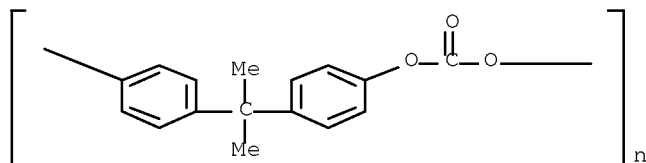
AB An electrophotog. imaging member including a substrate, a hole blocking
 adhesive layer, a charge generating layer and a charge transport layer, the
 hole blocking adhesive layer including a polyester film forming binder having
 dispersed therein a particulate reaction product of metal oxide particles and
 a hydrolyzed reactant selected from the group consisting of a N containing
 organo silane, an organotitanate and an organozirconate and mixts. thereof.
 Preferably, the electrophotog. imaging member is free of any distinct adhesive
 layer in contiguous contact with the hole. blocking adhesive layer. This
 imaging member may be used in an electrophotog. imaging process.

IT 24936-68-3, Makrolon 5705, uses 25038-59-9, Melinex 442,
 uses

(electrophotog. photoconductor with hole blocking
 layer from polyester dispersed coupling agent)

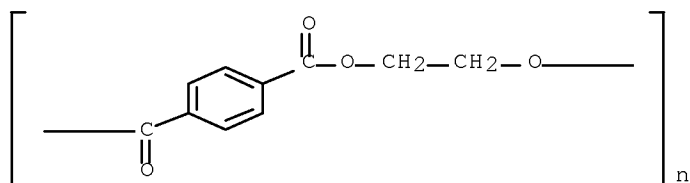
RN 24936-68-3 HCA

CN Poly[oxy-carbonyloxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (CA
 INDEX NAME)



RN 25038-59-9 HCA

CN Poly(oxy-1,2-ethanediylloxycarbonyl-1,4-phenylenecarbonyl) (CA INDEX NAME)



INCL 430058000

IPCI G03G0005-14 [ICM,6]

IPCR G03G0005-14 [I,C*]; G03G0005-14 [I,A]

NCL 430/058.050; 430/064.000; 430/908.000

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 919-30-2 7631-86-9D, Silica, (3-aminopropyl)trimethylsilane-modified 24936-68-3, Makrolon 5705, uses 24938-04-3 25038-59-9, Melinex 442, uses 161445-56-3, Aerosil S 506

(electrophotog. photoconductor with hole blocking layer from polyester dispersed coupling agent)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
=====	+	+	+	+	+
Anon				US 4464450 A	HCA
Anon				US 4654284 A	HCA
Anon				US 4664995 A	HCA
Anon				US 4786570 A	HCA
Anon				US 4869988 A	HCA
Anon				US 4946754 A	HCA
Anon				US 5008169 A	HCA
OS.CITING REF COUNT:	12	THERE ARE 12 CAPLUS RECORDS THAT CITE THIS RECORD (12 CITINGS)			

L66 ANSWER 29 OF 31 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 99:6675 HCA Full-text

ORIGINAL REFERENCE NO.: 99:1193a,1196a

TITLE: Paving and floor block composition

INVENTOR(S): Bunner, Matthew R.; Heinhuis, William H.

PATENT ASSIGNEE(S): Industrial Wood Products, Inc., USA

SOURCE: U.S., 7 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
US 4381328	A	19830426	US 1981-301221	19810911 <--
PRIORITY APPLN. INFO.:			US 1981-301221	19810911 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A composition and method is provided for forming paving and floor blocks which comprises forming a mixture of wood particles, phenolic resin, and paraffin wax for mold release properties and molding the composition into blocks containing a plurality of holes on the underside. Thus, wood particles (14-20 mesh) 88.5, formaldehyde-phenol copolymer [9003-35-4] 9.5, and paraffin wax 2.0% were mixed and molded at 320°F at 400 psi into a block having holes on

the underside extending to within $\geq 1/2$ in. of the top surface and ≥ 0.4 in. apart.

INCL 428171000

IPCI B32B0003-26 [ICM]; B32B0005-16 [ICS]

IPCR B27N0005-00 [I,C*]; B27N0005-02 [I,A]

NCL 428/171.000; 428/170.000; 428/218.000; 428/326.000; 428/332.000;
428/485.000

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 43

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
=====	+	+	+	+	+
Anon				US 3988183 A	HCA
Anon				US 4241133 A	

L66 ANSWER 30 OF 31 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 84:18679 HCA Full-text

ORIGINAL REFERENCE NO.: 84:3101a,3104a

TITLE: Continuous production of propylene oxide

INVENTOR(S): Yamagishi, Kazuo; Kageyama, Osamu; Numa, Sadaaki

PATENT ASSIGNEE(S): Daicel Ltd., Japan

SOURCE: Jpn. Tokkyo Koho, 6 pp.

CODEN: JAXXAD

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 50024284	B	19750814	JP 1974-79416	19740711 <--
PRIORITY APPLN. INFO.:			JP 1974-79416	A 19740711 <--

AB A tubular reactor is described for the continuous preparation of propylene oxide [75-56-9] from propylene (I) [115-07-1] and peracetic acid (II) [79-21-0]. The reactor has continuous reaction zones defined by blocking plates having holes of 2-10 mm diameter, the total area of the holes being 1-20%. A solution of II in an organic solvent was fed into the reaction zones from one end, and at the same time, I was introduced such that the I partial pressure was ≥ 3 kg/cm², thereby forming I bubbles which agitate the reaction solution in each zone. The product was removed from the opposite end of the reactor. IPCI C07D0301-14; C07D0301-00 [C*]; C07D0303-04; C07D0303-00 [C*]

IPCR C07D0301-00 [I,C*]; C07D0301-14 [I,A]; C07D0303-00 [I,C*]; C07D0303-04 [I,A]

CC 37-2 (Plastics Fabrication and Uses)

Section cross-reference(s): 27

L66 ANSWER 31 OF 31 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 77:76265 HCA Full-text

ORIGINAL REFERENCE NO.: 77:12585a,12588a

TITLE: Compositions for securing fixing elements

INVENTOR(S): Murphy, John Michael

PATENT ASSIGNEE(S): Explosives and Chemical Products Ltd.

SOURCE: Brit., 5 pp.
CODEN: BRXXAA

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

January 3, 2011

10/581,005

79

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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GB 1277425		19720614	GB 1968-52703	19681106 <--
AB A styrene [100-42-5] -containing Leguval K25R (I) [12688-27-6] polyester resin sheet cured with a filler-containing benzoyl peroxide [94-36-0] formed a hand-kneadable composite used for securing and anchoring bolts in concrete constructions. For example, a polyester sheet layer containing I, diisooctyl maleate(II), dolomite dust, asbestos fiber, and Aerosil silica was contacted with a sheet containing BzOOH, II, dolomite dust, asbestos fiber, and Aerosil silica. This composite was hand-kneaded until homogeneous, rolled into cylindrical shape, and placed in drilled concrete block holes. The bolt was inserted into the composite, and after 12 min, a load of 1500-1800 lb was required to remove the bolt. IPCI C08F				
IPCR B32B0015-08 [I,C*]; B32B0015-08 [I,A]; C08F0283-00 [I,C*]; C08F0283-01 [I,A]				
CC 37-3 (Plastics Fabrication and Uses)				